DIH InnovaMare

DIH INNOVAMARE PROJECT

D 1.3.3. – Developed 5 video materials

Project identification
Project ID: ITHR0200416
Name of the lead partner organisation: Hrvatska gospodarska komora
Name of the lead partner organization in English: Croatian Chamber of Economy
Project title: Cross-border digital innovation Hub for innovative marine technology
Project acronym: DIH InnovaMare
Programme priority: Sustainable growth in the blue economy
Specific objective 1.1: Developing and enhancing research and innovation capacities and the uptake of advanced technologies
Project duration in months: 30
Work package: WP1 Innovation capacity building for implementation of marine technologies
Activity title: A1.3 Developing a portfolio of case studies showcasing applications of maritime technology (along with a related business development strategy)
Expected date: P3
Activity description: DIH InnovaMare presents a series of best-case studies showcasing cutting-edge marine technology applications across key Blue Economy sectors. These real-world use cases demonstrate how digital and sustainable innovations are transforming marine industries in the Adriatic Sea region - bridging gaps between research, industry, and environmental stewardship.
Partner responsible: UCV and CCE
Dissemination level: CO - Confidential
Status: Final
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Introduction:

As part of the DIH InnovaMare project's ongoing communication and stakeholder engagement efforts, a series of video case studies **titled "Success Stories from the Adriatic Blue Economy"** has been developed and published. This deliverable aims to showcase exemplary use cases of digital and sustainable marine technologies across key Blue Economy sectors. These stories were created in collaboration with DIH InnovaMare partners and stakeholders from the Map of Excellence. Each success story highlights how stakeholders—including SMEs, startups, innovation hubs, and research institutions—are applying cutting-edge tools like AI, marine robotics, remote sensing, and data platforms to solve sector-specific challenges in the Adriatic region.

In this document, the DIH InnovaMare project presents a series of seven best-case studies showcasing innovative marine technology applications across key Blue Economy sectors. Although the focus is on the five best cases, we believe that sharing all collected case studies benefits the entire community by highlighting advancements in this blue economy sector. We are proud of the stakeholders and the technologies involved, and we are honored to work with them on this project and to support them in this way.

These real-world use cases show how digital and sustainable innovations are transforming marine industries in the Adriatic Sea region—bridging gaps between research, industry, and environmental stewardship. These success stories from the Adriatic Blue Economy are shared as short videos. The entities that developed the corresponding solutions were chosen because they align closely with the key goals of the DIH InnovaMare project—state-of-the-art digital and sustainable innovations aimed at transforming the Blue Economy sectors in the Adriatic Sea region. This visual storytelling approach helps stakeholders, policymakers, and the public understand the tangible benefits of digital transformation in the marine sectors.
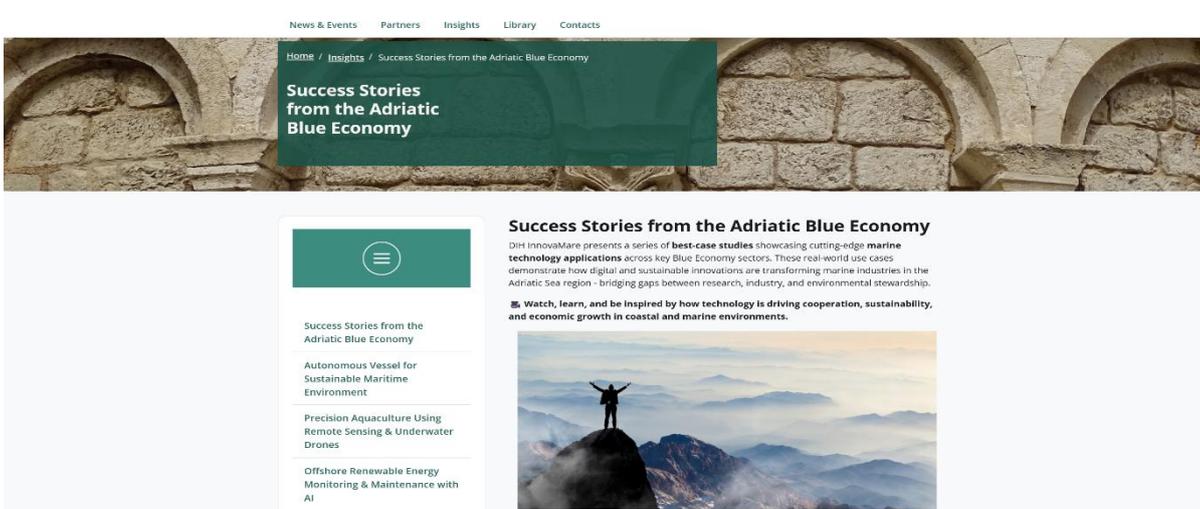
Case studies:

1. Autonomous Vessel for Sustainable Maritime Environment (Maritime Transport Sector)

This vessel was developed by *Hartera Robotics*, an innovative start-up transforming vessel maintenance. It is also developing robots for dry marinas worldwide. Hartera Robotics is not just innovating; they are changing how the maritime industry handles vessel maintenance. By tackling key issues of efficiency, sustainability, and cost, they provide a solution that addresses current industry needs while paving the way for a more sustainable and efficient future. Their dedication to innovation, combined with our understanding of the maritime sector's challenges, positions us as a leading force in the evolution of maritime maintenance practices.

This case explores how autonomous navigation systems and smart sensors are revolutionizing port operations and vessel efficiency. By integrating AI and IoT, maritime operators are reducing emissions, improving safety, and enhancing logistics across the Adriatic Sea. It also shows how smart technologies are steering the future of clean and efficient maritime mobility - https://www.youtube.com/watch?v=8SP-sImlFUM.

2. Precision Aquaculture Using Remote Sensing and Underwater Drones (Fisheries and Aquaculture Sector)

This system was developed by DIH Agrifood Croatia. DIH Agrifood Croatia is an innovation hub that unites research, business, and public stakeholders in Croatia to promote digital transformations in aquaculture, agriculture, and food-related sectors. Its mission is to help achieve the vision outlined in the EU Declaration of 'A smart and sustainable digital future for European agriculture and rural areas' and to strengthen the national and European technological infrastructure. The video material provides a detailed look at how precision farming techniques, underwater drones, and data analytics are optimizing fish farming operations. This approach not only boosts productivity but also promotes sustainable ecosystem management. Additionally, it demonstrates how innovation is making aquaculture smarter, safer, and more sustainable - https://www.youtube.com/watch?v=cmA64szeT1g.

3. Offshore Renewable Energy Monitoring and Maintenance (Renewable Energy Sector)

The system was developed by *Zadar Energija*. It is a company that operates 440 MW of Wind Farms (SS 220 kV); (SS 110 kV). They are a 24/7 service provider in the field of operation, maintenance, and testing of electrical equipment for power plants and substations. They provide high-quality geospatial products using a multitude of tools. Zadar Energija has years of experience in creating, installing, and maintaining

charging infrastructure, including several nationwide charger networks. They also deliver state-of-the-art products using remote sensing satellite data.

The video provided allows us to learn how marine robotics and AI-powered predictive maintenance tools are supporting offshore wind and wave energy installations. These innovations ensure system reliability while minimizing human risk and ecological disruption. They also prove the power and importance of digital tech in scaling clean energy at sea - https://www.youtube.com/watch?v=T_Z3wL-zwpk

4. Marine Environmental Data Platforms (Environmental Monitoring Sector)

The platforms were developed by *Tilebytes*. It is an innovative Italian SME that exemplifies how technology, environmental awareness, and cross-sector collaboration can drive progress toward a smarter and more sustainable blue economy. The company specializes in developing modular SaaS/PaaS platforms that integrate data from both fixed and mobile sensors to monitor environmental parameters such as weather conditions and air quality. This technology is particularly valuable for assessing environmental impact in port and maritime areas. A key example of Tilebytes' user-centered approach is its collaboration with *LabService*, which resulted in the development of an interactive reporting system – featuring app and chatbot interfaces – for collecting citizen reports on odour issues.

The video material delivered shows how data-driven platforms and marine sensors help local tourism operators balance economic activity with conservation goals. Real-time environmental data empowers

smarter destination management, ensuring both visitor satisfaction and ecosystem health. It proves that digital tools are becoming more and more capable of reshaping sustainable tourism in coastal zones - https://www.youtube.com/watch?v=sf3lnXknFwY
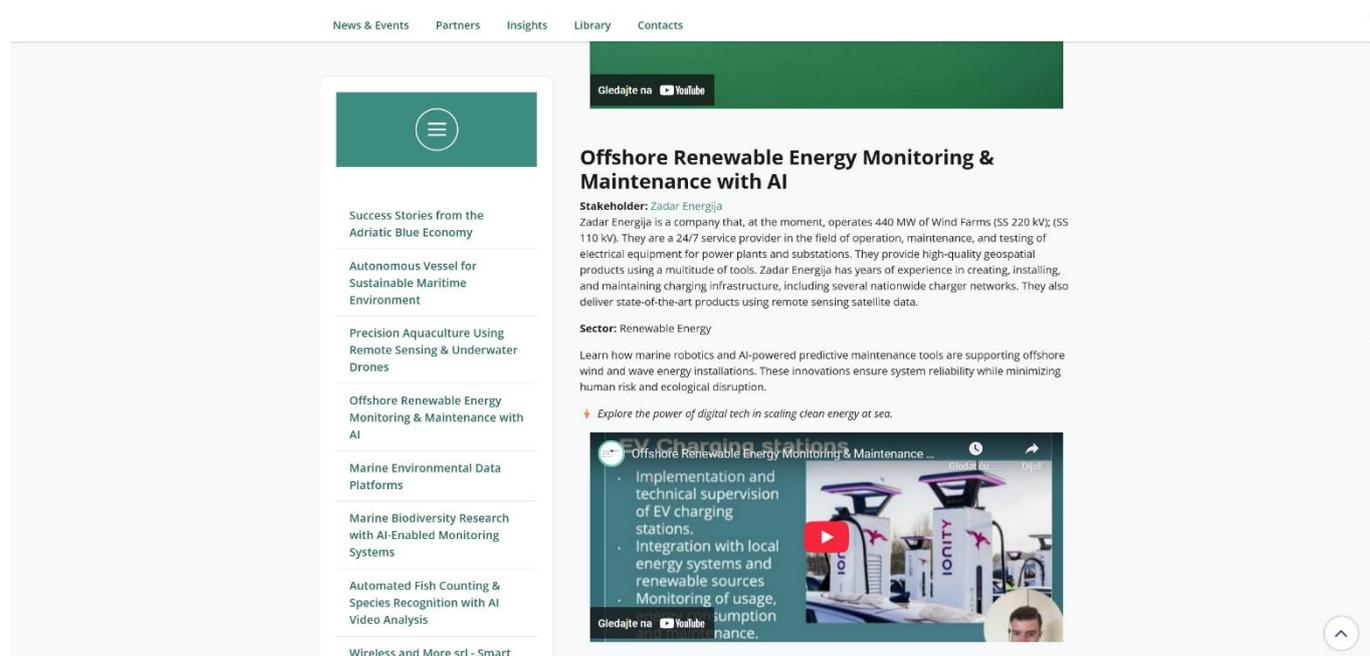
5. Marine Biodiversity Research with AI-Enabled Monitoring Systems (Marine Research and Environmental Protection Sector)

The systems were developed by *SeaCras*. It is a world-renowned company that provides a suite of marine environmental and coastal surveillance solutions that detect and distinguish naturally occurring events and pollution hazards. Their satellite-derived oceanographic solutions enable coverage of open seas, coastal waters, as well as urbanized and remote areas. In addition, cutting-edge AI and imaging technologies enable continuous, automated monitoring of marine biodiversity. This case demonstrates how scientists are using innovation to detect species, monitor health indicators, and guide conservation efforts in the Adriatic Sea. It confirms that digital innovation is successfully advancing marine science and protecting biodiversity - https://www.youtube.com/watch?v=46-86p6znRQ

6. Software for Advanced Aquaculture Video Analysis – Fish Counting and Species Recognition Robot (Fisheries and Aquaculture Sector)

The software was developed by *Karmen Studio* (since renamed to *BlueDataB*). It is an innovative company made up of a team of ambitious scientists, experienced software developers, and curious entrepreneurs working together to provide the most accurate, ambitious, and UX-friendly video, as well as image processing software solutions, improving business and scientific research outcomes. They specialize in advanced digital solutions for application in the aquaculture sector. A database of algorithms that they have developed has a huge potential to advance science and business through more precise and faster image and video processing features.

In this case study, the video provided shows the functioning of the fish counting robot during transfers. It counts fish up to 300% faster than humans. Reports are generated automatically in a near real-time manner, while the increased precision allows the users to effortlessly adhere to the authority requirements. During fish transfers, this automated system excels at both automatically counting fish and selecting a representative fish sample for 3D landmark measurements. Using advanced algorithms, it automatically identifies approximately 20-30% of the fish in the transfer for precise analysis. By analysing their distribution, it can accurately estimate the quantity and the types of the entire fish population in transfer - https://youtu.be/PK4wILaWG78.

7. Smart Marine Monitoring Buoy - innovative solar-powered smart buoy – (Marine Technology/ Environmental Monitoring sector)

A solar-powered smart buoy—an entirely autonomous marine monitoring platform designed to collect and transmit real-time environmental and visual data—was developed by Wireless and More Srl. Wireless and More Srl is an innovative spin-off from the University of Padova, made up of a team of highly skilled engineers, telecommunications experts, and embedded systems developers working together to bring smart, connected technologies to marine environments. The buoy continuously gathers essential data such as water temperature, turbidity, salinity, pH, and dissolved oxygen. It also enables visual surveillance of underwater ecosystems and cultural heritage sites, allowing researchers, marine biologists, and public authorities to monitor and respond in near real-time. The buoy's wireless communication system ensures that data is transmitted quickly and reliably, supporting informed decision-making and better environmental protection.

In this case study, the video demonstrates the buoy in action—actively monitoring a coastal area while transmitting data to a central platform. The system provides automated environmental reports and real-time visual feedback, enhancing both research capabilities and regulatory compliance. With its modular design and advanced embedded software, the buoy can be tailored to specific marine applications, from aquaculture to marine archaeology and ecosystem restoration. By leveraging its deep knowledge in embedded systems and telecommunications, Wireless and More is redefining how digital innovation

supports marine sustainability and cultural preservation, bringing robust, connected solutions to the heart of the Blue Economy - https://youtu.be/zSd9Yz8jxuA

Conclusion

These stories confirm what DIH InnovaMare has championed all along: the future of the Blue Economy lies in smart, sustainable innovation, driven by collaboration between researchers, technologists, businesses, and local communities.

From robotics and AI to underwater drones and citizen platforms, innovation in the Adriatic is real, measurable, and inspiring. These success stories are more than proof of progress — they are blueprints for replication, models of cooperation, and invitations to engage.

The web version of this case study portfolio is available at https://www.italy-croatia.eu/web/dihinnovamare/success-stories-from-the-adriatic-blue-economy.