XR 4 Cultural Heritage

www.3dresearch.it

MARCO COZZA – *Chief Technical Officer* - 3D RESEARCH SRL

3D RESEARCH

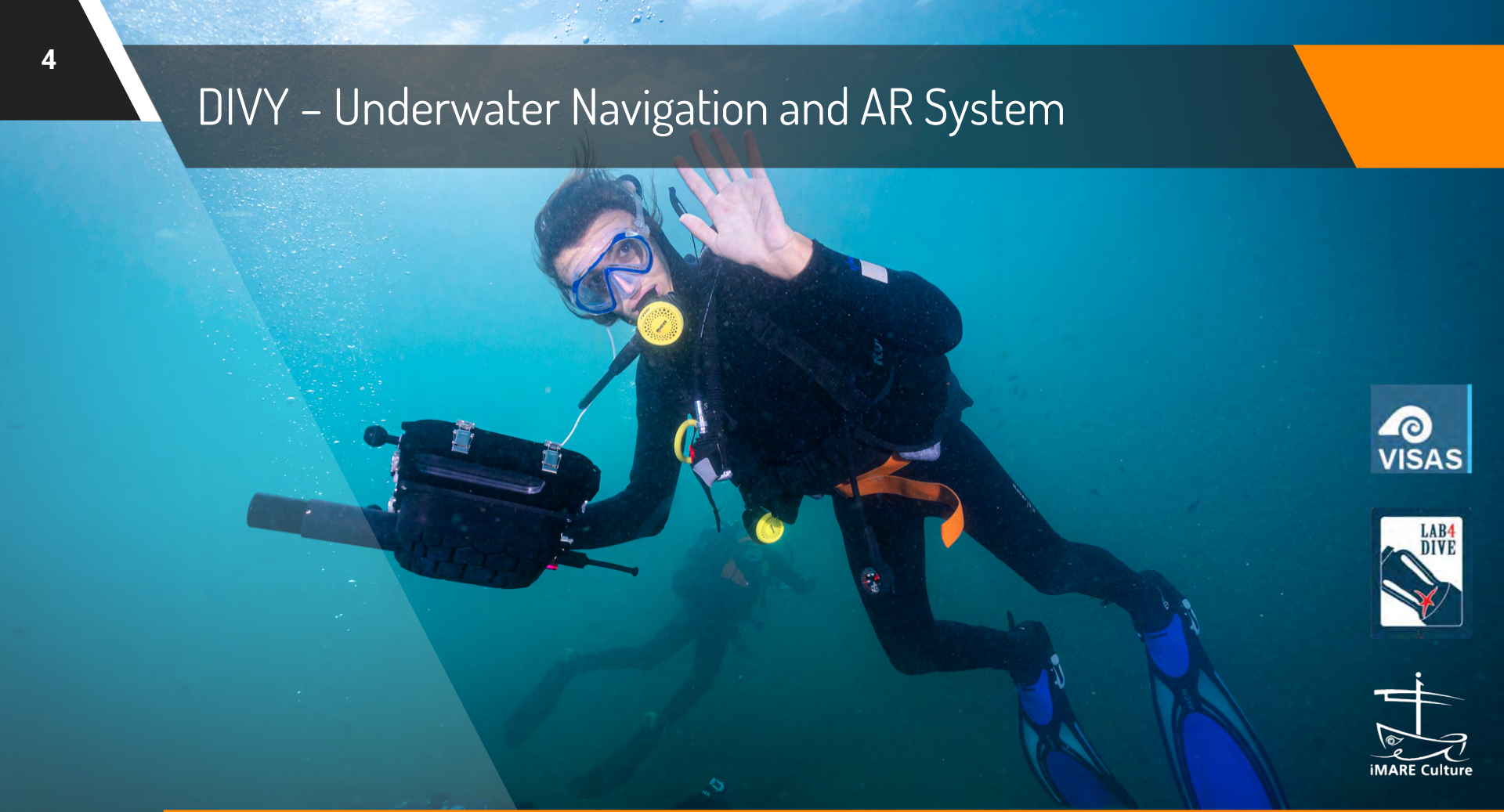
Spin-Off Company of the University of Calabria, funded in 2008 by a small group of young researchers belonging to the Department of Mechanical Engineering.

Nowadays, the team is composed of more than 15 members with different backgrounds and skills.

What we do

- UNDERWATER TECHNOLOGIES
- SOFTWARE DEVELOPMENT
- AR & VR
- PROTOTYPING
- 3D RECONSTRUCTIONS
- 3D MODELLING
- RESEARCH & DEVELOPMENT
- STORYTELLING
- SERIOUS GAMES

DIVY – Underwater Navigation and AR System



VISAS

LAB4 DIVE

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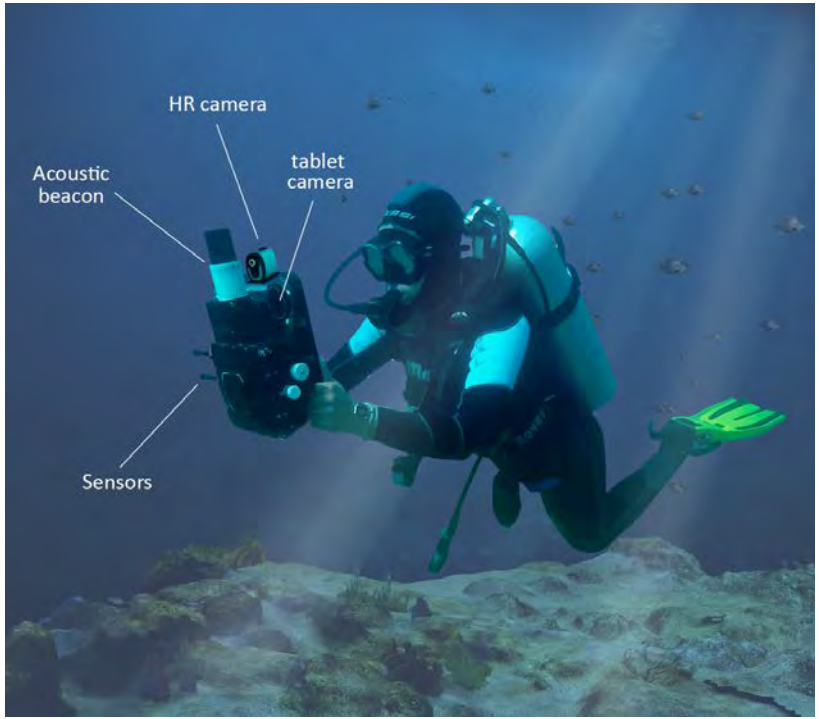
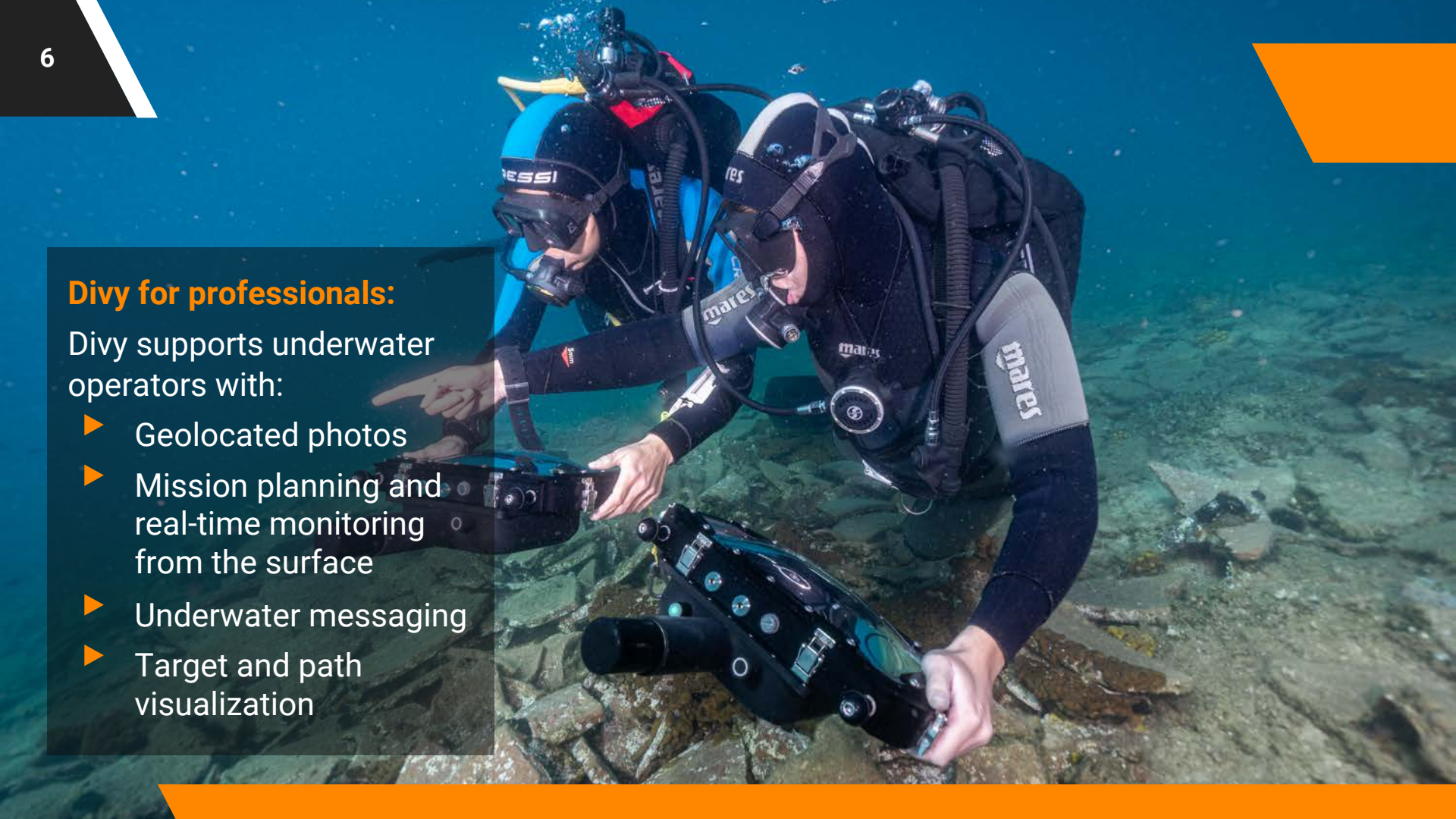
DIVY – Underwater Navigation System

- Underwater Tablet
- Assisted Navigation App
- Acoustic Positioning System
- Mission Planning and Monitoring App
- Cloud platform





Divy for professionals:

Divy supports underwater operators with:

- Geolocated photos
- Mission planning and real-time monitoring from the surface
- Underwater messaging
- Target and path visualization

Divy for recreative divers:

Divy enriches the visit experience for submerged sites with:

- Underwater Augmented Reality
- 3D virtual reconstructions
- Assisted Navigation
- Multimedia Contents
- Underwater guided tours

Underwater Augmented Reality

- Augmented visualization of 3D hypothetical reconstructions

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Funded by EU H2020 Programme – Research and Innovation

Underwater Augmented Reality

- Marker-based approach
- Marker-less approach

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UWAR application

Top View

First Person View

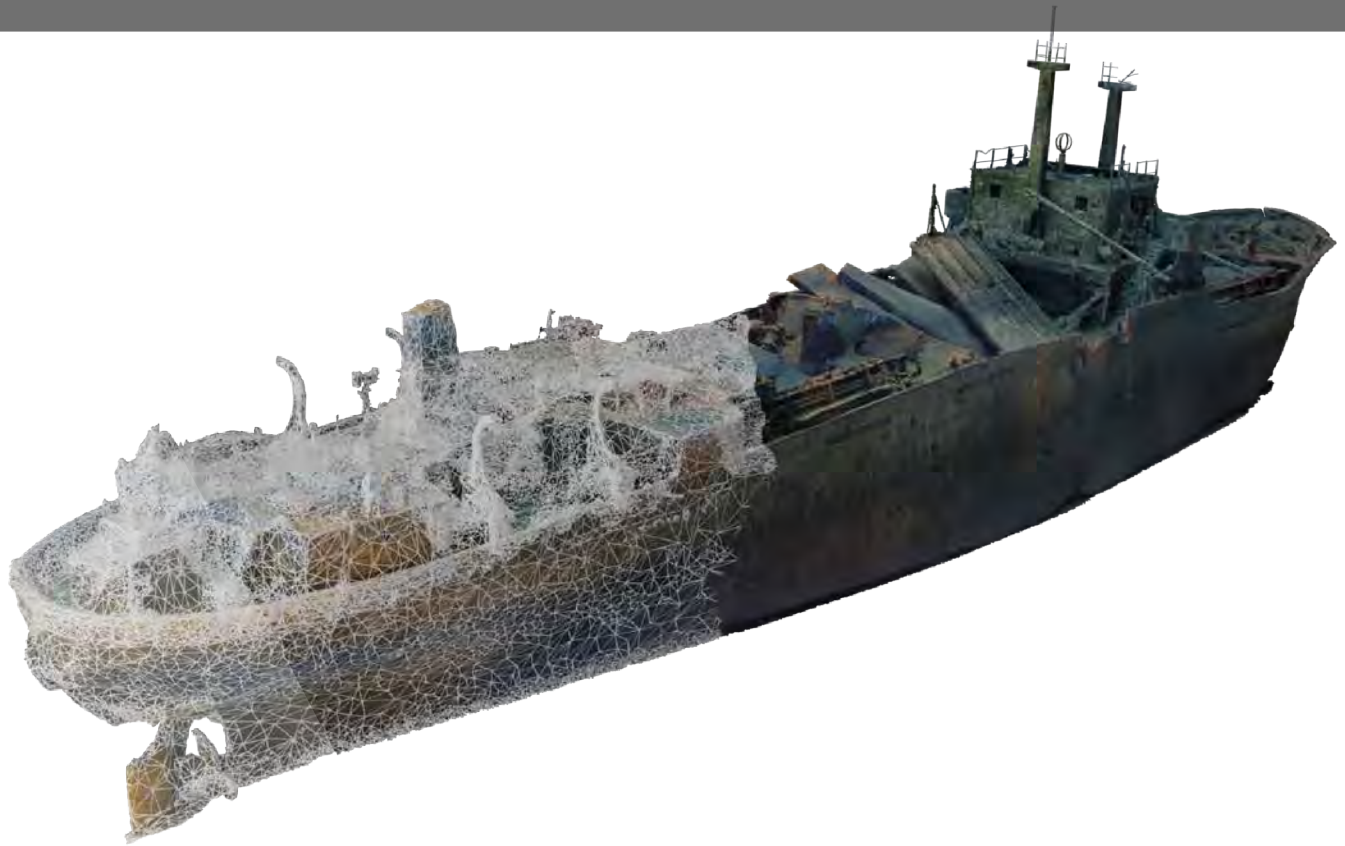
https://www.youtube.com/watch?v=EZ3S_l3KuwM&t=5s

DEVSS – Autonomous Surface Vehicle

Features:

- Quick assembly and easy transportation
- Replaceable equipment
- Remote control
- Radius of action: 500 mt
- Automatic mission planning

UW 3D Reconstructions

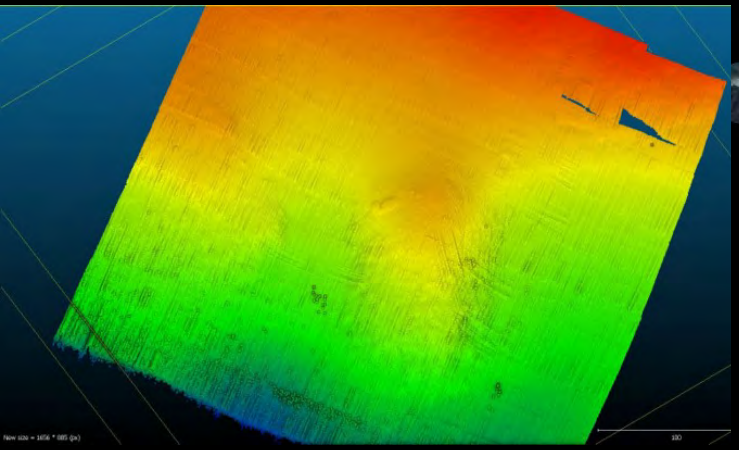


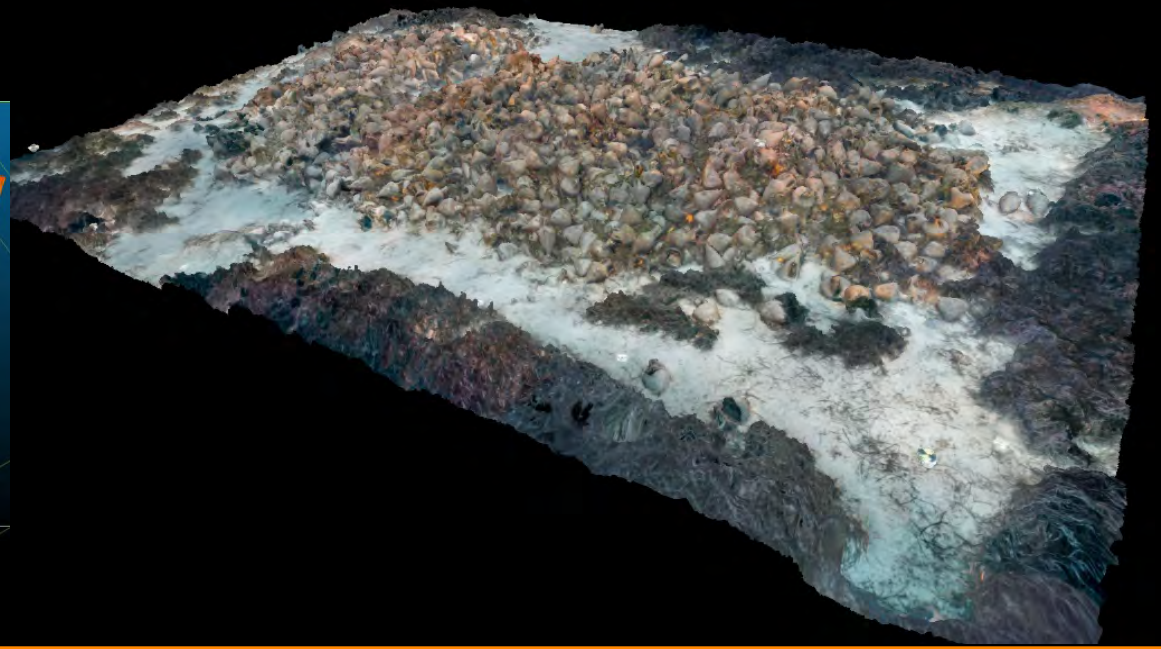
Underwater survey and data acquisition


3D reconstruction (optical) of Peristera shipwreck - Greece

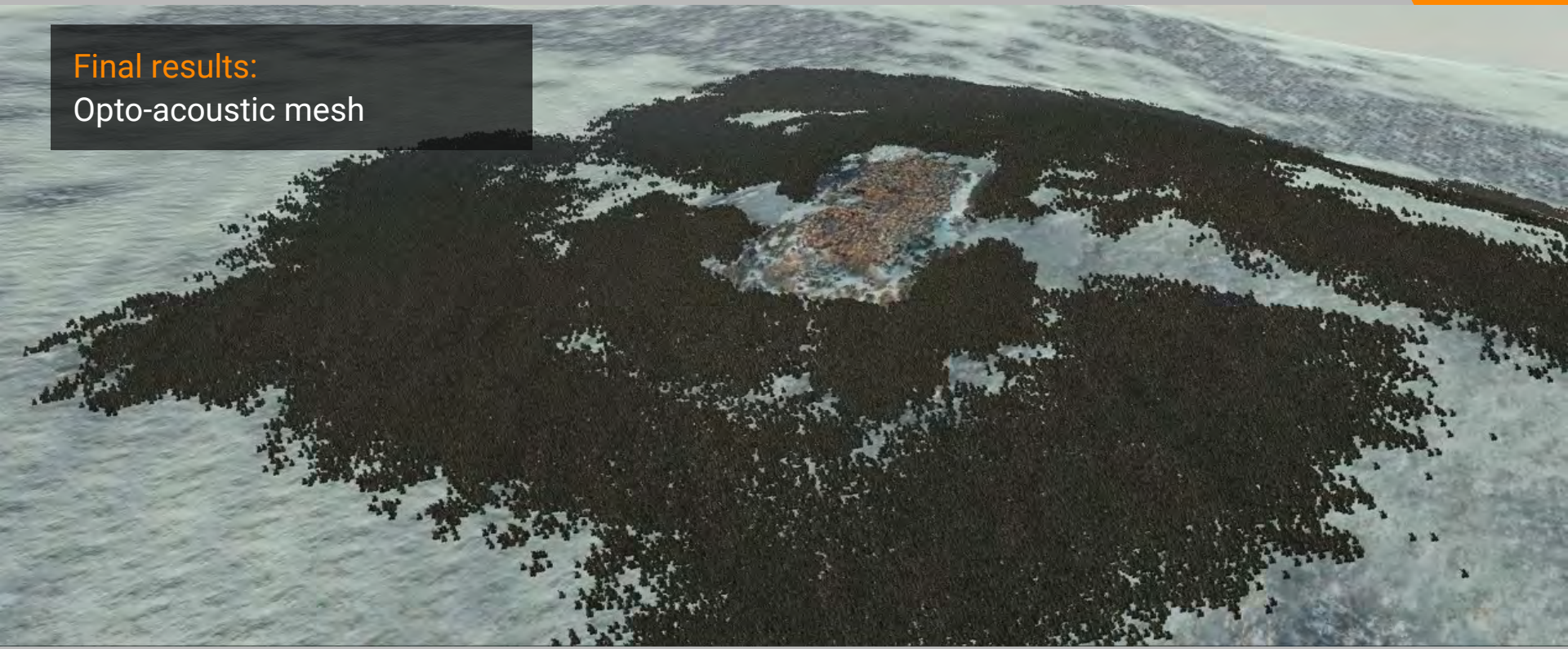
Data Fusion

(acoustic and optical)





Final results:
Opto-acoustic mesh



DryVisit – Virtual Diving System

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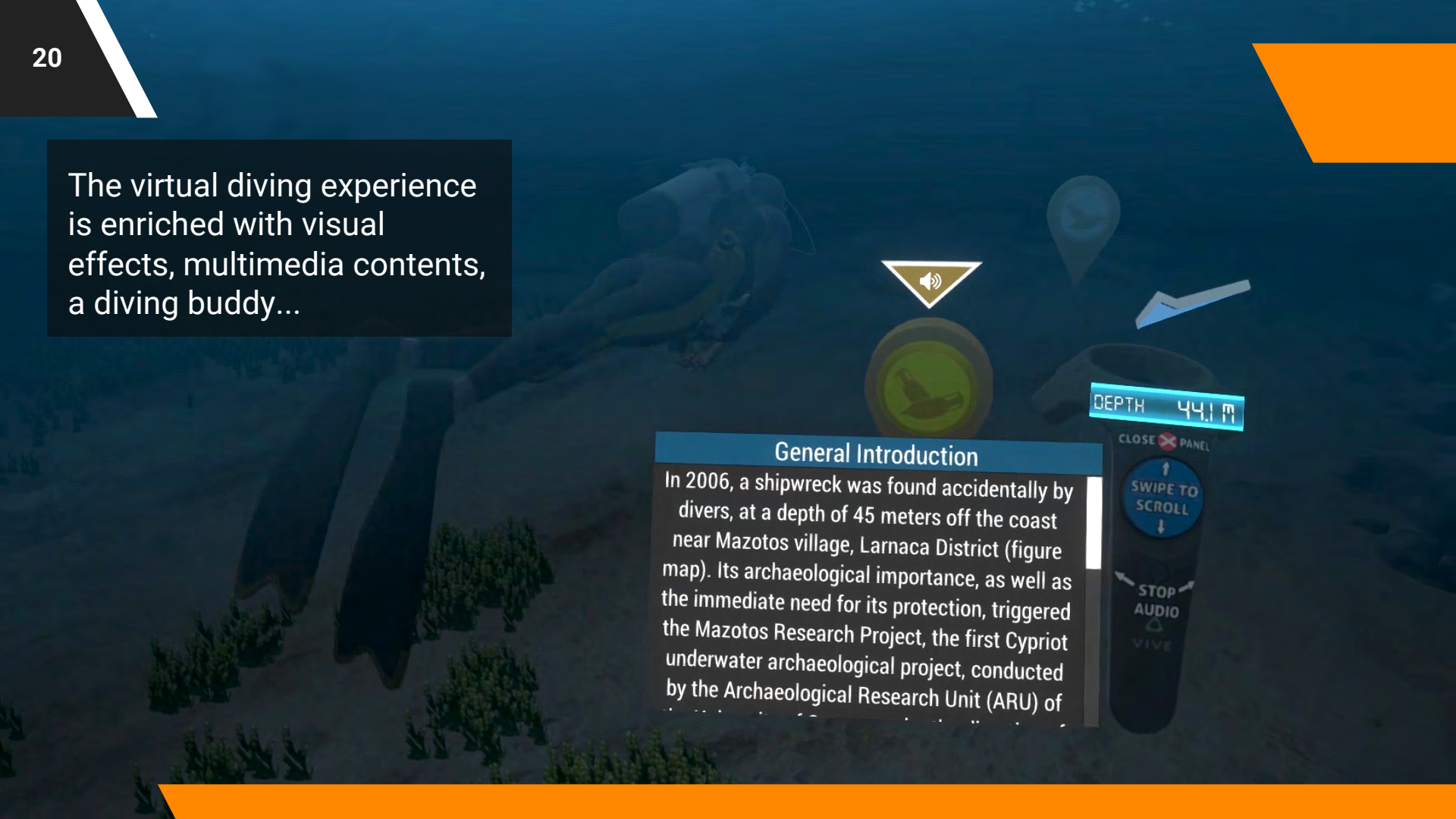
DryVisit is an edutainment system that enables users to simulate a diving into the most beautiful cultural and natural underwater sites.

Christofors shipwreck – Skopelos – Greece

The virtual diving experience is enriched with visual effects, multimedia contents, a diving buddy...



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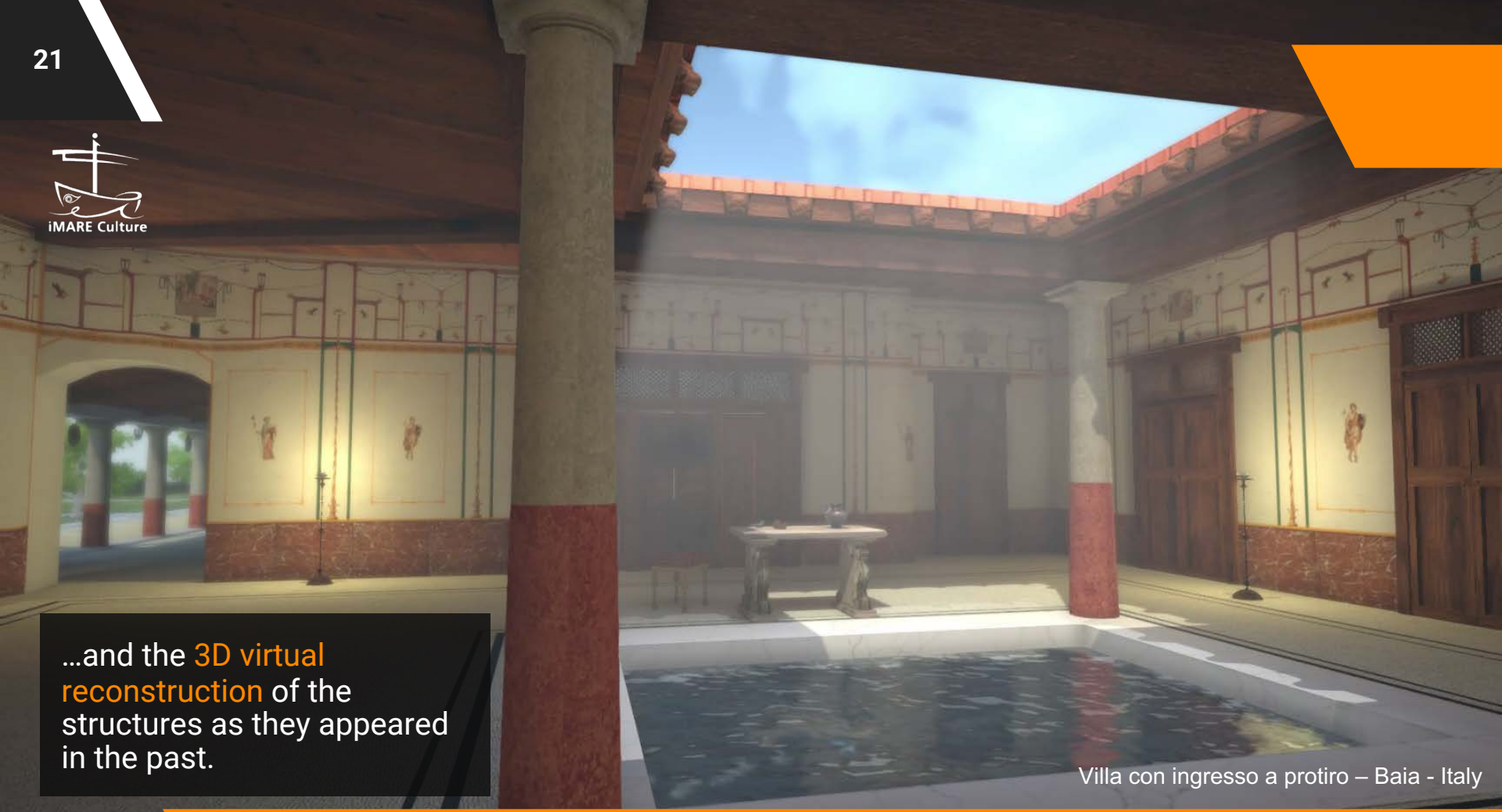


…and the 3D virtual reconstruction of the structures as they appeared in the past.

Villa con ingresso a protiro – Baia - Italy

MUSAS
MUSEI DI ARCHEOLOGIA SUBACQUEA

The storytelling can involve users with a feeling of presence.

Villa dei Pisoni – Baia - Italy

MUSAS
MUSEI DI ARCHEOLOGIA SUBACQUEA

Ninfeo Imperiale di Punta Epitaffio– Baia - Italy

DRYVISIT – DEMO VIDEOS

Gameplay trailer for the Steam Store

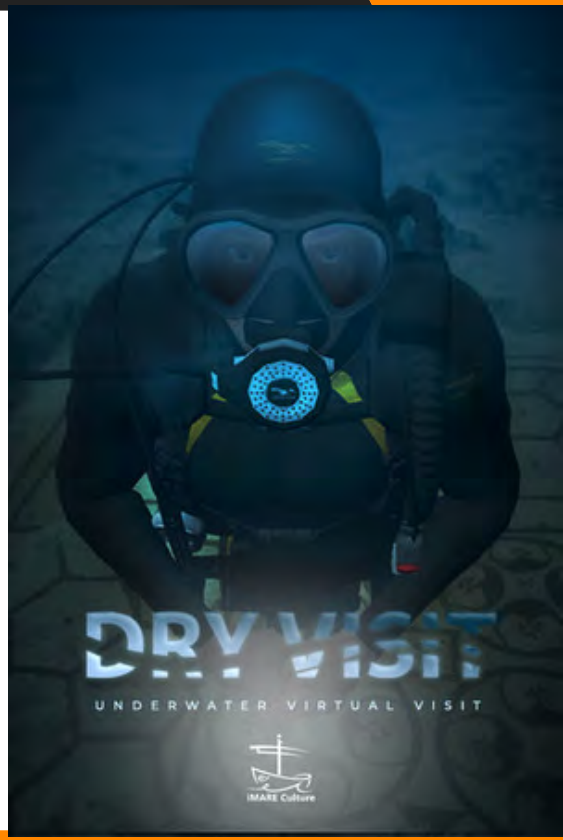
- https://youtu.be/NdT3ZCfW87g

Dry Visit – Baiae – Villa con ingresso a protiro

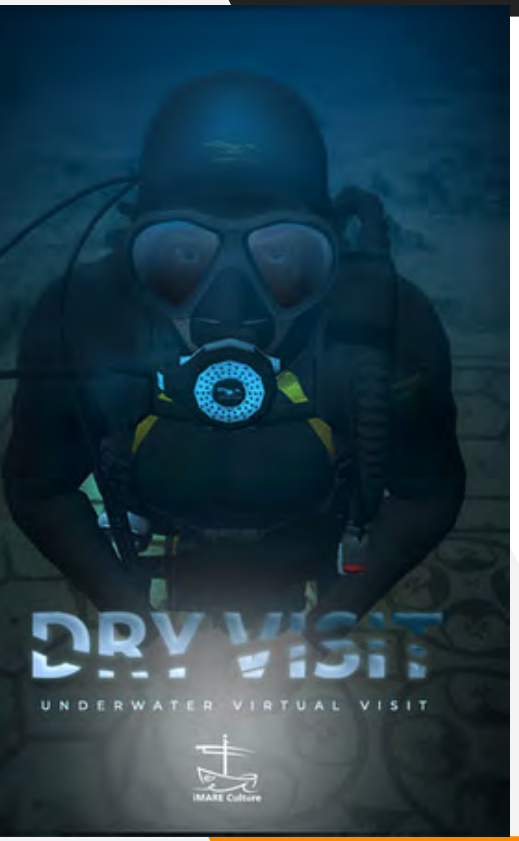
- https://www.youtube.com/watch?v=Se9Ekx7Hteo&t=43s

VR Dry Visit Gameplay demo

- https://youtu.be/AqhAiwjWaQw



DRYVISIT – DOWNLOAD LINKS



Steam Store (HTC Vive)

- https://bit.ly/2M3QHgP

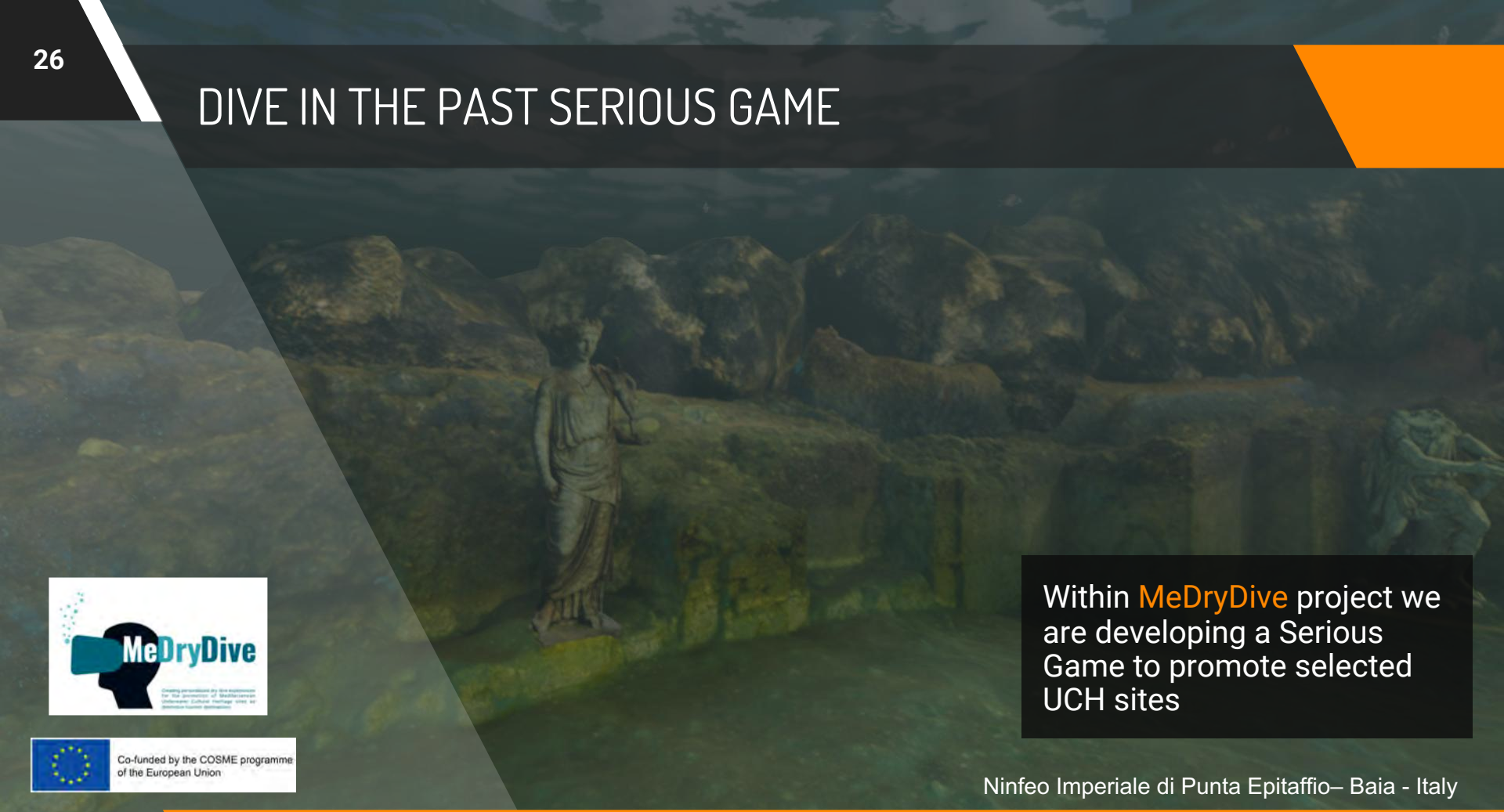
Dry Visit – Baiae (Android – iOS) [No VR]

- https://bit.ly/3ewbsP4

Dry Visit Xlendi (Android – iOS) [No VR]

- https://bit.ly/31fi14C

DIVE IN THE PAST SERIOUS GAME

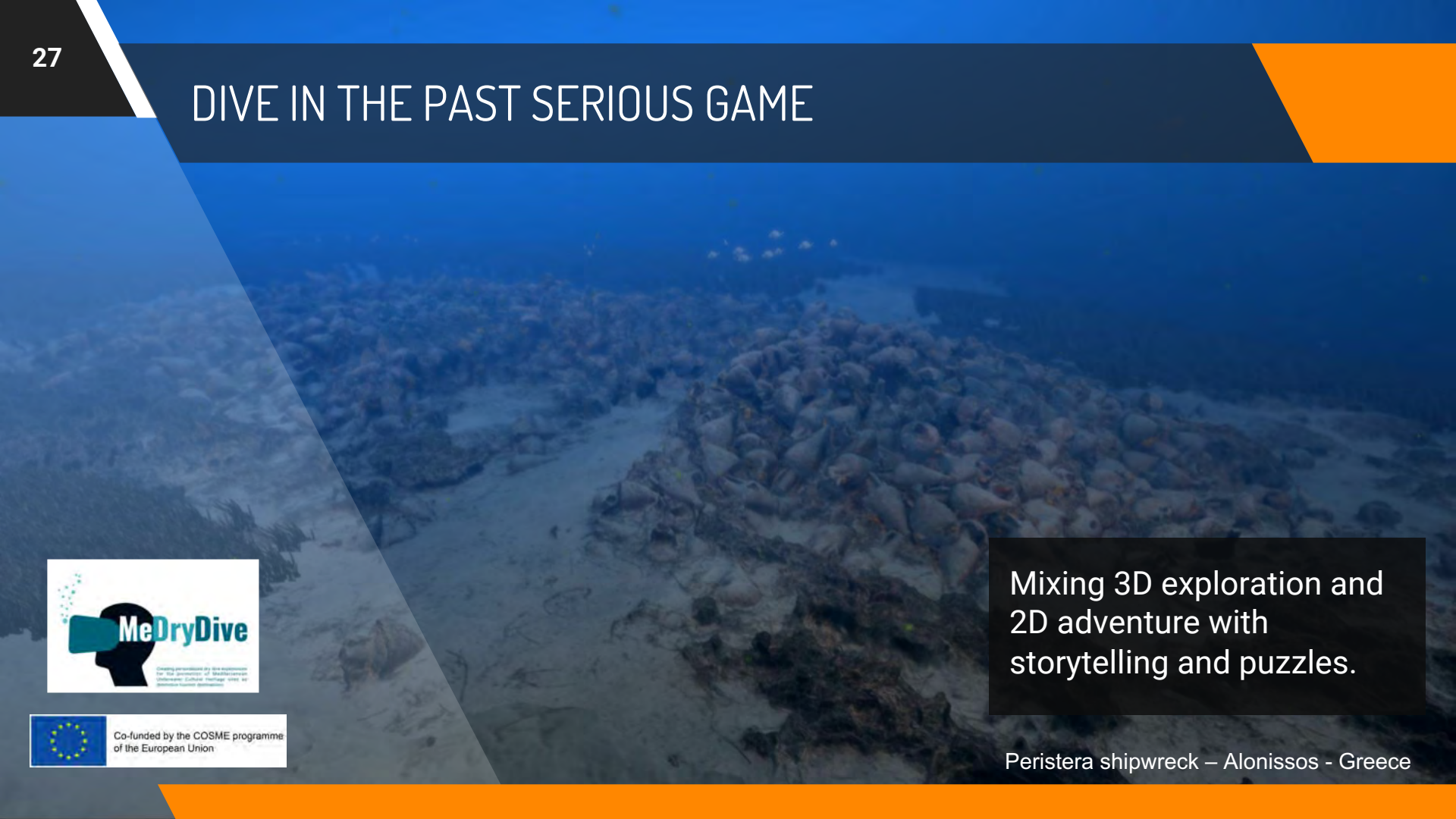


Within MeDryDive project we are developing a Serious Game to promote selected UCH sites

Ninfeo Imperiale di Punta Epitaffio– Baia - Italy

Co-funded by the COSME programme of the European Union

DIVE IN THE PAST SERIOUS GAME



Mixing 3D exploration and 2D adventure with storytelling and puzzles.

Peristera shipwreck – Alonissos - Greece

Co-funded by the COSME programme of the European Union

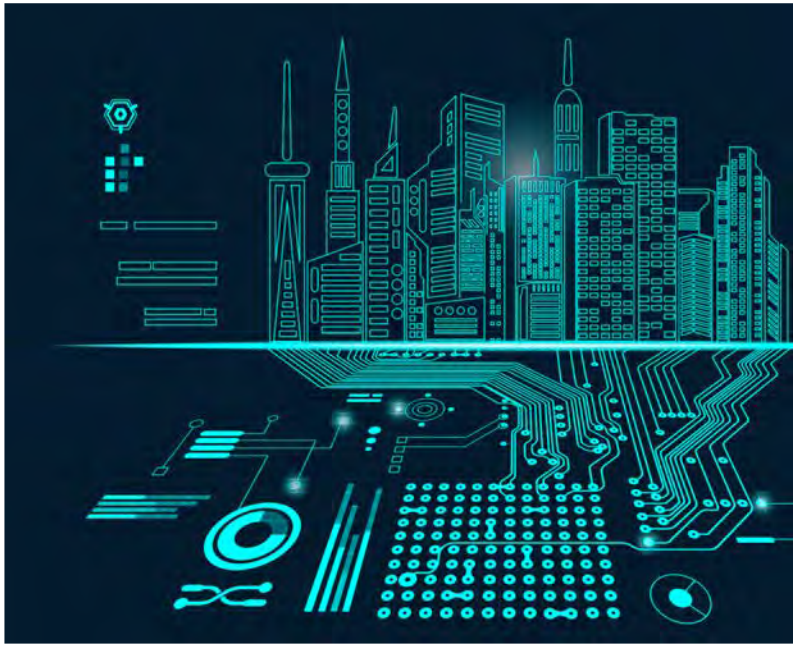
ADDITIONAL PROJECTS WE ARE INVOLVED IN

XR for Industry

- Smart Assembly
- Training/Learning

XR for Architecture and Engineering

- BIM and HBIM



THANK YOU!

3D RESEARCH SRL

MARCO COZZA

Chief Technical Officer

marco.cozza@3dresearch.it

+39 0984 1758030

www.3dresearch.it

info@3dresearch.it