Project overview

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Project Director

Dissemination level: Public

iMagine RP1 review

December 5th 2023

iMagine overview

> **OBJECTIVE:**
> *To deploy, operate, validate, and promote a dedicated **iMagine AI framework** and platform, connected to EOSC and AI4EU, giving researchers in **aquatic sciences** open access to a **diverse portfolio of AI based image analysis services and image repositories** from multiple RIs, working on and of relevance to the overarching theme of 'Healthy oceans, seas, coastal and inland waters'.*

- **36** months
- From **Sept. 2022** until **Aug. 2025**
- **€4.5 million** EC funding
- **23** participants (**19** beneficiaries + **4** affiliated partners)
- **18** service installations (Virtual Access)

Achieving impact with 8+ use cases and 10+ RIs
(5 mature, 3 prototypes, External)

Aquatic Litter Drones (DFKI, MARIS, OGS):

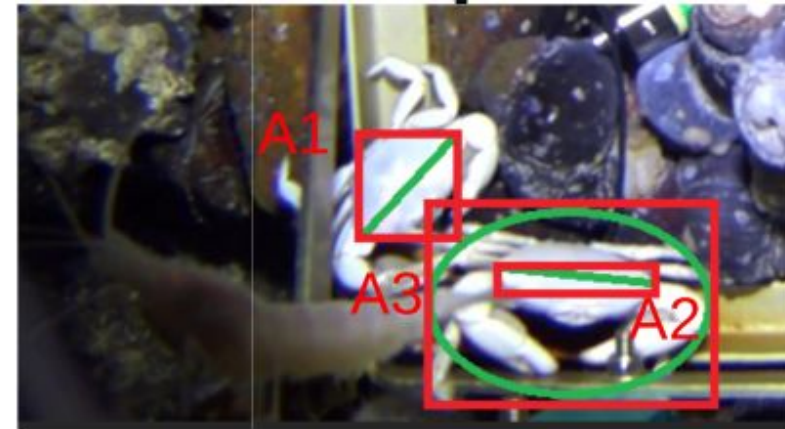Monitoring system for Aquatic Litter Pollution

Drone Survey - Level B

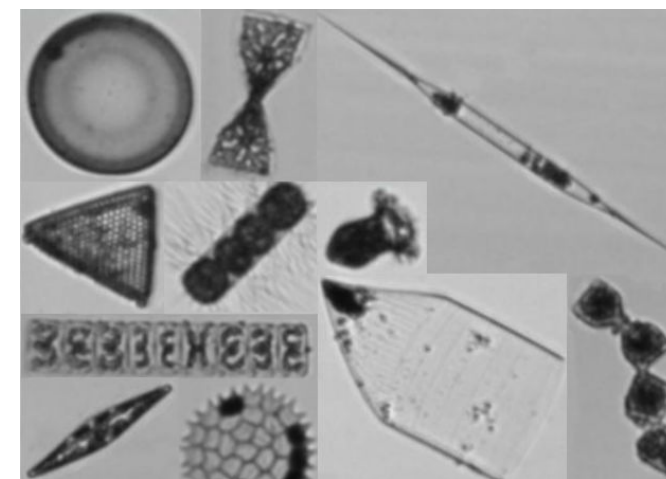**Marine Ecosystem Monitoring** (EMSO ERIC, UPC, IFREMER, MI):

Ecosystem Monitoring by means of video imagery from cameras at EMSO sites

Flowcam phytoplankton identification (VLIZ):

Taxonomic identification of phytoplankton using FlowCAM images
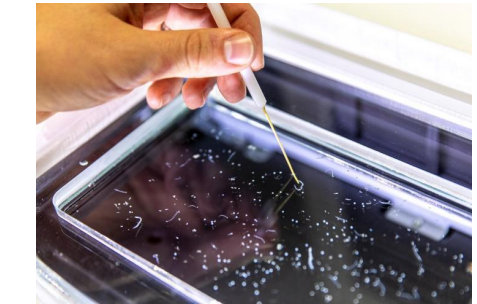

Beach monitoring (SOCIB):

Posidonia oceanica berms and rip-currents detection from beach monitoring systems

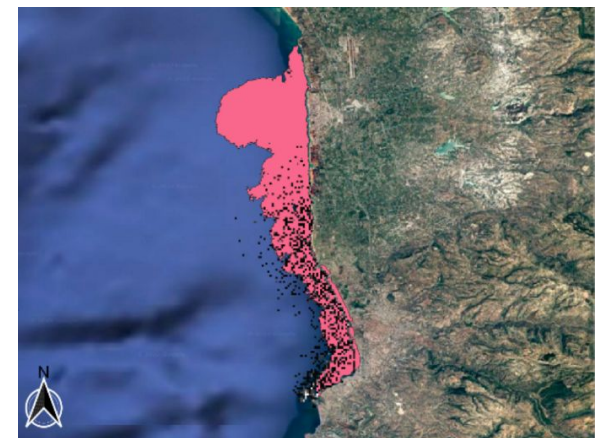**Zooscan – EcoTaxa pipeline** (Sorbonne Université):

Taxonomic identification of zooplankton using Zooscan

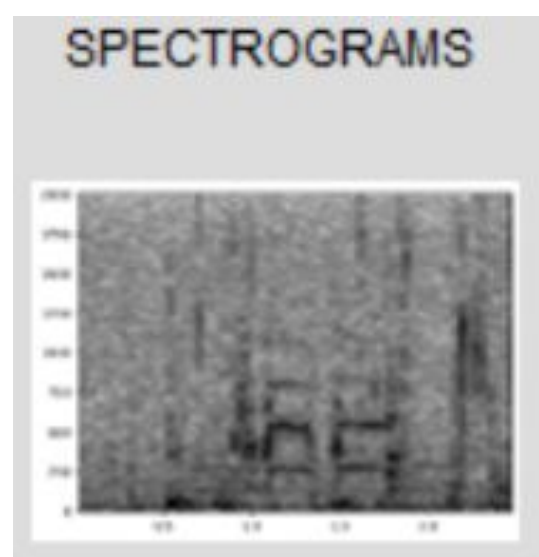**Oil Spill Detection** (CMCC, OrbitalEOS, UNITN):

Oil spill detection from satellite images

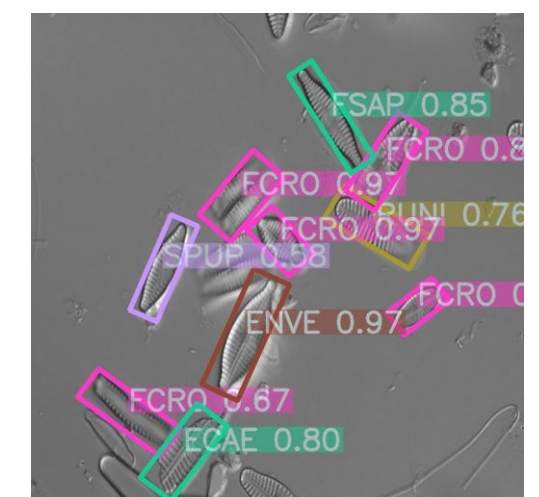**Underwater noise identification** (VLIZ):

Identification of sound events from acoustic recordings using spectrograms

SPECTROGRAMS

Freshwater diatoms identification (UL-LIEC):

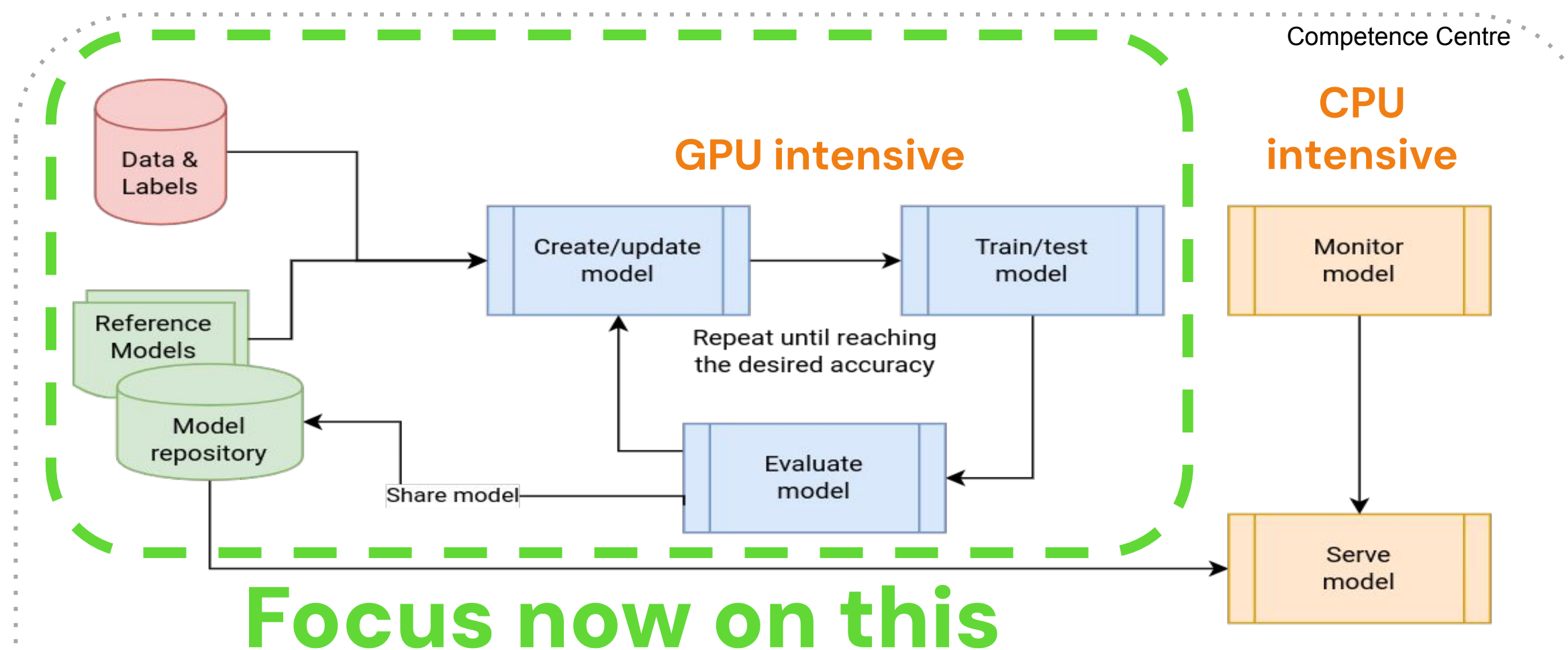Diatom-based bioidentification using automatic pattern recognition on microscope images

Use cases selected with an Open Call (WP2): (1) Satellite-Derived Bathymetry; (2) Cold Water Coral Reefs

The iMagine Approach

Thematic Services

Competence Centre

GPU intensive

CPU intensive

Focus now on this

8 internal use cases
- 5 production AI services
- 3 AI application prototypes

Benefitting **10+** Research Infrastructures &

EOSC **AI4EU**

Platform Service

VA started
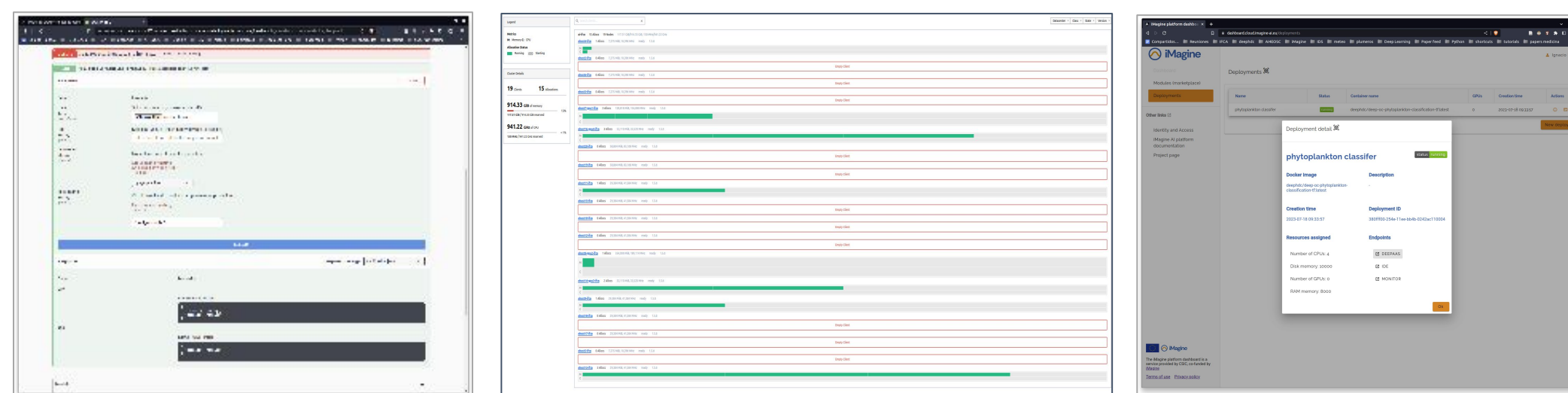
iMagine AI Platform: Generic, scalable platform for developing and sharing AI/ML applications. Currently serving,
- 8 internal use cases
- 2 external use cases

deep Hybrid DataCloud   AI4 | **eosc**

Infrastructure

egi

CSIC Consejo Superior de Investigaciones Científicas

INCD

TÜBİTAK

WALTON Institute for Information and Communication Systems Science

Integrated in the AI platform

Integrated in the EGI Cloud

- **1500** TB–months
- **132,000** GPU–hours
- **6,000,000** CPU–hours

4 federated cloud infrastructures – OpenStack GPUs, CPUs, Storage – from Spain, Portugal, Turkey & Ireland.

Specific Objectives and indicators

iMagine

SUCCESS INDICATOR:

O1 — **Objective 1.** Deliver a scalable, shared IT platform for image analysis in marine and freshwater research

Operational iMagine platform with common AI development framework from TRL 7 to 9
AI PLATFORM IS OPEN (WP4)

O2 — **Objective 2.** Advance existing image analytical services to increase research performance in aquatic sciences

Launch of 5 aquatic AI image services, running operationally at the iMagine platform
IN DEVELOPMENT (WP3)
FIRST TO OPEN IN 2024 Q1 (WP5)

O3 — **Objective 3.** Develop & prototype new image analytical services and datasets that can accelerate progress towards healthy oceans, seas, coastal and inland waters

Availability of three prototype services (TRL5) for RI communities in the iMagine platform with agreed functionality.
IN DEVELOPMENT (WP3)
FIRST VALIDATIONS IN LATE 2024 (WP3)

O4 — **Objective 4.** Capture and disseminate development and operational best practices to imaging data and image analysis service providers

Best Practices documentation, interaction with EOSC and AI4EU platforms.
ONLINE DOCUMENTATION + IN EOSC (WP2)
Training programme
2 INTERNAL; 1 PUBLIC TRAINING (WP3)

O5 — **Objective 5.** Deliver a portfolio of scientific image and image analytics services targeting researchers in marine and aquatic sciences

Portfolio: operational services, image repositories, Best Practices, iMagine framework and platform
GROWING BEST PRACTICES ONLINE (WP2+3)
PRESENTATIONS AT 8 EXTERNAL EVENTS
IMAGES ARE LABELLED AND TO OPEN IN 2024 (WP5)

Agenda of the day

Time	Duration (Presentation + Questions)	Session title	Work Package	Speaker
09:00 - 09:10	10'	Welcome		
09:10 - 09:30	15' + 5'	Project overview	All	Dick M.A. Schaap (MARIS) - Scientific Coordinator Gergely Sipos (EGI) - Project Director
09:30 - 09:55	15' + 10'	Project management	WP1	Hien Bui (EGI) - Project Manager
Coffee break - 15'				
10:10 - 10:40	20' + 10'	The iMagine AI Platform	WP4	Alvaro Lopez (CSIC) - WP4 Leader
10:40 - 11:10	20' + 10'	Competence Centre	WP3	Valentin Kozlov (KIT) - WP3 Leader
11:10 - 11:50	15' + 5' 15' + 5'	2 representative use cases	WP3-4-5	Enoc Martínez (UPC): Marine ecosystem monitoring at EMSO-OBSEA Klaas Deneudt (VLIZ): Flowcam plankton identification
Lunch break - 70'				
13:00 - 13:30	20' + 10'	Innovation Management & Communication	WP2	Smitesh Jain - WP2 Leader
13:30 - 13:45	15'	Conclusion and next steps	All	Gergely Sipos (EGI) - Project Director
14:15 - 14:45	30'	Feedback session		

Thank you!

Questions?

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