Innovation Management and Exploitation Updated Plan

iMagine Deliverable D2.5

31/05/2024

Abstract

This deliverable provides an update on various activities carried out by the Innovation and Exploitation team based on the plan presented in D2.2 First Innovation Management and Exploitation Plan at the end of February 2023. This updated plan is to be implemented by the Task2.1 members during the next 15 months.

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Introduction

iMagine has the overall objective to deploy, operate, validate, and promote a dedicated iMagine AI framework and platform. The platform, connected to the EOSC and AI4EU, provides researchers in aquatic sciences with open access to a diverse portfolio of AI-based image analysis services and image repositories from multiple RIs. These services and repositories are of relevance to the overarching theme of 'Healthy oceans, seas, coastal and inland waters'.

The project concept revolves around three main working blocks:

- A common **iMagine AI framework and computing platform** will be configured facilitating researchers in developing, testing, training, hosting, and operating AI-based image analysis services, following FAIR practices.
- **Five operational and three prototype AI-based image analysis services** with image repositories will be developed and deployed at the iMagine AI platform to provide open access and exploitation by researchers. They will also be instrumental in demonstrating value and fostering further uptake by a large community of target users and beneficiaries.
- **Best Practices** – consisting of documentation and training materials – will be compiled giving practical guidance and examples to end-users on exploiting image datasets and analysis applications offered by the iMagine portfolio and serving as an example to whoever wishes to develop and deliver similar AI-based image analysis services and image repositories.

The activities related to the Innovation and Exploitation Management in the iMagine project fall under task 2.1 with the main objectives to:

1. Implement and conduct an operational innovation management process.
2. Capture and assess project results for exploitation readiness.
3. Identify and articulate the Key Exploitable Results (KERs).
4. Organise hands-on workshops (for example, business models) that will support innovation management and exploitation activities.
5. Monitor changing market landscapes, responding to feedback and the potential for new business opportunities.
6. Provide facilitation in project events and meetings (for example, brainstorming sessions).

This document is an updated version of D2.2 First Innovation Management and Exploitation Plan delivered in February 2023[1].

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[1] https://zenodo.org/records/7760155

Purpose of the document

The purpose of the document is to provide an update of the guidelines, processes, key concepts, templates and tools that have been described in D2.2, and to structure activities that drive innovation management and exploitation in iMagine. This document refers to the target groups as identified in the D2.1 First Communication, Dissemination and Engagement plan[2] for exploitation purposes.

Scope of the document

The first iteration of this deliverable covers Innovation Management and Exploitation aspects mainly focused on the project results and KERs. The second iteration of this public document will also cover the plan for business modelling and sustainability analysis. The outcome of the business modelling and sustainability analysis, however, will be included in the D2.6 (Business Model Analysis and Sustainability Plan), which will be marked as sensitive and to be prepared in the last year of the project. The final iteration of the deliverable will focus on showcasing the outputs of innovation management and exploitation activities and lessons learned during the project.

Structure of the document

This document is structured as follows,

– The next section provides an overview of the various activities which fall under innovation and exploitation management.
– A section is then dedicated to each of these activities.
– Finally, the last section provides the activity plan for the last 15 months of the project.

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[2] https://zenodo.org/records/7462914

Innovation and Exploitation Activities

The innovation and Exploitation Management approach of the iMagine project derives loosely from the Technology Management Process[3] and ISO 56002:2019 Innovation management — Innovation management system — Guidance[4]. However, both these approaches are geared towards organisations. Therefore, the elements from these approaches are modified to better suit the requirements of a Horizon Europe project. Innovation and Exploitation management in a Horizon Europe project should cover the following aspects:

1. Managing the IP and its rights related to the project (Background, Sideground, Third-party and Foreground).
2. Capturing and managing information related to the results developed by the project.
3. Developing a comprehensive business plan/case for the project results.
4. Developing exploitation strategies and documenting exploitation, impact and success stories from the project.

Using all of these as a basis, the following activities were identified in D2.2 First Innovation Management and Exploitation Plan[5], for activities to be performed in Task 2.1:

- Stakeholder Analysis
- Key Exploitable Result Management
- Project Result Management
- Intellectual Property Management
- Business Modelling and Sustainability Analysis
- Exploitation Strategy
- Impact Analysis

Each of these activities is covered in a separate chapter in this document.

Stakeholder Analysis

Stakeholder analysis is the process of collecting information about any person who will be impacted by (or can impact) your project. Conducting a stakeholder analysis will enable you to identify all your stakeholders as well as their needs and expectations. The goals of this activity are to,

1. Identify and map stakeholders relevant to the iMagine project.
2. Assess stakeholder engagement and awareness.
3. If required, identify ways to improve stakeholder engagement and awareness.

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[3] Gregory, M.J. (1995), ``Technology management: a process approach'', Proceedings of the Institution of Mechanical Engineers, Vol. 209, pp. 347–56.

[4] https://www.iso.org/standard/68221.html
[5] https://zenodo.org/records/7760155

Stakeholder identification

Stakeholder identification was based on the stakeholders identified in the proposal and the initial analysis presented in the D2.1 First Communication, Dissemination and Engagement plan[6]. In addition, an online workshop was organised with the use cases of the iMagine project to collect additional information about these stakeholders[7]. All the information was collected and categorised into the following set of stakeholders,

- Users
- Service and Content Providers
- Infrastructure Providers
- Similar AI initiatives
- Suppliers
- Organisations/Agencies from different disciplines
- Policy Makers
- Decision Makers
- General Public

Stakeholder Engagement Assessment Matrix (SEAM)

Once the stakeholder groups are mapped, they will be assessed intermittently using the SEAM. The SEAM supports the comparison between the current engagement levels of stakeholders and the desired engagement levels required. This assessment will feed into the communication and dissemination strategy by helping determine who to engage with, how to engage them, and what kind of information or resources they may need. The engagement will be gauged at five levels as suggested in the Project Management Body of Knowledge (PMBOK) guide[8] [9],

1. Unaware — Not aware of the project or its impact
2. Resistant — Aware of the project but resistant to change
3. Neutral — Aware of the project, but neither supportive nor resistant
4. Supportive — Aware and supportive of the project
5. Leading — Aware of and actively engaged in ensuring the success of the project

With the support of the communications manager, Task 2.1 developed the SEAM for the iMagine project. This SEAM was presented to the Activity and Service Board (ASB) of the iMagine project for feedback and suggestions. The current SEAM with desired ("D") and

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[6] https://zenodo.org/records/7462914

[7] https://app.mural.co/t/egi3550/m/egi3550/1695966032458/dd143e781759c7c8b897d667355a638fca3fa6cb?sender=u297868c2869ea72cbfe74783

[8] https://www.pmi.org/pmbok-guide-standards

[9] https://project-management.info/stakeholder-engagement-matrix/

current ("C") levels of engagement per stakeholder for the iMagine project is presented in **Table 1**.

Table 1 – SEAM

Stakeholder Group	Unaware of the project	Aware of the project			
		Resistant	**Neutral**	**Supportive**	**Actively Engaged**
Users	C				D
Service and Content Providers					C D
Infrastructure Providers			C		D
Similar AI initiatives				C D	
Suppliers					C D
Organisations/Agencies from different disciplines			C	D	
Policy Makers				C	D
Decision Makers	C		D		
General Public			C D		

Stakeholder prioritisation

The last part of the stakeholder analysis was to prioritise the identified stakeholders. Since the project will likely not be able to meet the needs of all stakeholders at the same time, prioritising was key to getting engagement started. 'Users' and 'Similar AI initiatives' were identified as the key stakeholders to whom engagement activities had to be targeted. The detailed engagement activities are documented in the D2.4 Communication, Dissemination and Engagement Updated plan[10].

Key Exploitable Result Management

A Key Exploitable Result (KER) is a project result or a group of similar project results with particularly high exploitation potential, i.e., use and benefits from something often for commercial purposes, public policymaking, or further research. The goals of this activity are to,

1. Identify and manage KERs.

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[10] https://zenodo.org/records/11192926

2. Identify KER Ambassadors.
3. Collect information related to KERs.

KER Identification

After detailed discussions in the ASB, it was decided to modify the list of KERs of the project to better represent the project's results. From the original five KERs identified during the project phase, the list was expanded to the current eight KERs by breaking up and combining some of the old KERs. Here is the list of the new KERs of the project:

1. KER#1 Marine litter assessment

2. KER#2 Zooscan – EcoTaxa pipeline

3. KER#3 Marine ecosystem monitoring

4. KER#4 Oil spill detection

5. KER#5 Flowcam plankton identification

6. KER#6 Prototype Marine Imaging services

7. KER#7 The iMagine–AI Platform

8. KER#8 Best Practices

KER Ambassadors

For each of the KERs identified, one or two KER Ambassadors were appointed with the support of the ASB. These KER Ambassadors, together with the Innovation Manager leading, form the Innovation and Exploitation Group (IEG) of the iMagine project.

KER Ambassadors have the following role in the project:

1. They act as an Ambassador for the KER – a primary spokesperson within the project, helping to encourage uptake, exploitation and dissemination of the KER.
2. They provide the relevant data for the Horizon Result Platform (HRP) template for their respective KERs.
3. They support the development and exploitation plan, pointing to the relevant contact persons for technical, IP and other exploitation plan aspects of the KER.
4. They take the lead in providing inputs on dissemination messaging.
5. They help bridge the gap between technical outputs and their practical implications by promoting uptake.

Table 2 – KER Ambassadors

KER	Ambassador
KER#1 Marine litter assessment	Carolin Leluschko
KER#2 ZooProcess	Madeleine Walker

KER#3 Marine ecosystem monitoring	Gabriella Quaranta; Enoc Martinez
KER#4 Oil spill detection	Giovanni Coppini; Igor Atake
KER#5 Flowcam plankton identification	Rune Lagaisse
KER#6 Prototype Imaging services	Valentin Kozlov
KER#7 The iMagine-AI Platform	Alvaro Lopez Garcia
KER#8 Best Practices	Dick MA Schaap

KER Templates

A key aspect of the Horizon Europe projects is that every KER should be submitted to the Horizon Results Platform (HRP). The template for the HRP, though extensive, still misses some important aspects like underlying problems, future outlook, related IP and dissemination activities, etc. The HRP template has then been expanded to cover these aspects so that all the relevant information for each KER is captured in the same place. For each of the KER, this information will be collected throughout the project with the support of the KER Ambassadors. A snapshot of the information collected for each of the KERs is presented in Appendix A.

Project Result Management

A project result is any output generated during the project implementation. Some examples of project results include know-how, experience, algorithms, prototypes, new products or services, policy recommendations, roadmaps, learnings, reports, publications, data, events, etc. The goals of this activity are to,

- Identify, record and manage the project results.
- Ensure that innovation developed or enhanced by the project is well-documented.

The list of currently documented project results and their related IP details is presented in the next section.

Intellectual Property Management

This activity documents and manages the intellectual property that existed before the project started (relevant to the execution and exploitation of the project) and will be generated during the project duration. The goals of this activity are to,

1. Identify, record and manage the Background IP, Third-party IP and Sideground IP.
2. Ensure sufficient rights exist to the Background, Third-party and Sideground IP.
3. Identify and record the Foreground IP.
4. Protect the Foreground IP using appropriate methods and support the resolution of any IP conflicts that may arise.

5. Develop any agreements related to the generated IP (joint ownership, licensing, etc.)

There are four types of intellectual property in the context of the iMagine project that could be relevant; these are detailed in the following.

Background IP

Background IP is knowledge/IP relevant to a collaborative project and supplied by the partners at the start of the project. Background IP was identified as part of the Consortium Agreement. The task continues to monitor if all the required Background IP was listed as part of the agreement.

Sideground IP

Sideground IP is knowledge/IP that is relevant to a collaborative project but produced outside the project by any of the partners during the project's tenure.

Table 3 – Sideground IP

Name	Short Description	IP Owner(s)	IP protection or license used
AI4Dashboard	The dashboard is the entry point to the AI platform	CSIC; INFN; UPV; IISAS; PSNC; Predictia	***Protection:*** Copyright ***License:*** Apache 2.0 ***Repository:*** https://github.com/ai4os/ai4-dashboard
AI4EOSC-Platform API	Platform API for interacting with the AI4EOSC services	CSIC; UPV	***Protection:*** Copyright ***License:*** Apache 2.0 ***Repository:*** https://github.com/ai4os/ai4-papi
AI4OS Hub Modules Template	Templates for developing new modules and for users performing retraining of an existing AI4OS-Hub module in the AI4OS Platform	KIT	***Protection:*** Copyright ***License:*** MIT ***Repositories:*** • https://github.com/ai4os/ai4-template-adv • https://github.com/ai4os/ai4-template-child • https://github.com/ai4os/ai4-template

| OSCAR | OSCAR is an open-source platform that supports the event-driven serverless computing model for data-processing applications | UPV | *Protection:* Copyright
License: Apache 2.0
Repository:
https://github.com/grycap/oscar |

Third-Party IP

Third-party IP is knowledge/IP that is relevant to a collaborative project but supplied by third parties other than the project consortium.

No third-party IP relevant to the project has been identified yet.

Foreground IP

Foreground IP is captured during the execution of the project and is important to ensure that sufficient rights exist to ensure the successful exploitation of the project results to which this IP is connected.

Table 4 presents the list of already documented Foreground IPs. Please note that this list is yet incomplete and will continue to be expanded in the coming months.

Table 4 – Documented Foreground IPs

Name	IP Owner(s)	KER	Confidential	Embargo Date	IPR Issues	Type of IP protection and licensing used	IP protection or license used	Joint Ownership Agreement Required
Code for Litter Assessment Service	DFKI	KER1	No	N/A	No	Software License	MIT License	No
Code for Phytoplankton species classifier	VLIZ	KER5	No	N/A	No	Software License	Apache 2.0 https://github.com/lifewatch/phyto-plankton-classification	No
LifeWatch observatory data: phytoplankton annotated training set by FlowCam imaging in the Belgian Part of the North Sea	VLIZ	KER5	No	N/A	No	Copyright	CC-BY https://zenodo.org/records/1055484 5	No
SCLabels: Labelled rectified RGB images from the Spanish CoastSnap network	SOCIB	KER6	No	N/A	No	Copyright	CC-BY https://zenodo.org/records/1015997 8	No

Name	IP Owner(s)	KER	Confidential	Embargo Date	IPR Issues	Type of IP protection and licensing used	IP protection or license used	Joint Ownership Agreement Required
Labeled Images at OBSEA for Object Detection Algorithms	UPC	KER3	No	N/A	No	Copyright	CC–BY https://zenodo.org/records/10809434	No
EyeOnWater training dataset for assessing the inclusion of water images	MARIS	KER6	No	N/A	No	Copyright	CC–BY https://zenodo.org/records/10777441	No
Code for ZooProcess Pipeline (Zooscan)	SU	KER2	No	N/A	No	Copyright	MIT https://github.com/ecotaxa/ZooProcess-front https://github.com/ecotaxa/ZooProcess-back https://github.com/ecotaxa/ZooProcess-python	No

Name	IP Owner(s)	KER	Confidential	Embargo Date	IPR Issues	Type of IP protection and licensing used	IP protection or license used	Joint Ownership Agreement Required
Code for Multi-Plankton Separation (Zooscan)	SU	KER2	No	N/A	No	Copyright	MIT https://github.com/ecotaxa/DEEP-OC-multi_plankton_separation?tab=readme-ov-file https://github.com/ecotaxa/multi_plankton_separation	No
Training Dataset for Zooscan	SU	KER2	No	N/A	No	Copyright	CC-BY https://www.seanoe.org/data/00885/99663/	No
Dashboard Look and Feel Customisations (Sideground coming from AI4EOSC)	CSIC; UPV	KER7	No	N/A	No	Copyright	Apache 2.0 https://github.com/ai4os/ai4-dashboard	No*

Name	IP Owner(s)	KER	Confidential	Embargo Date	IPR Issues	Type of IP protection and licensing used	IP protection or license used	Joint Ownership Agreement Required
Improvements to API for creating new prototyping deployments using Nomad and OSCAR (Branding, AAI integration; OSCAR integration) *(Sideground coming from AI4EOSC)*	CSIC; UPV	KER7	No	N/A	No	Copyright	Apache 2.0 https://github.com/ai4os/ai4-papi	No*
Improvements to Templates service to bootstrap repository structure, compatible with iMagine platform (Branding, AAI integration) *(Sideground coming from AI4EOSC)*	KIT	KER7	No	N/A	No	Copyright	MIT License https://github.com/ai4os/ai4-template-adv https://github.com/ai4os/ai4-template-child https://github.com/ai4os/ai4-template	No

Name	IP Owner(s)	KER	Confidential	Embargo Date	IPR Issues	Type of IP protection and licensing used	IP protection or license used	Joint Ownership Agreement Required
Improvements to OSCAR (Branding, AAI integration, dashboard integration; accounting module to get usage metrics; UI enhancements) *(Sideground coming from AI4EOSC)*	UPV	KER7	No	N/A	No	Copyright	Apache 2.0 https://github.com/grycap/oscar	No
Project Deliverables	Consortium	KER8	No	N/A	No	Copyright	CC-BY https://zenodo.org/communities/imagine-project/	No
Project Presentations	Consortium	N/A	No	N/A	No	Copyright	CC-BY https://zenodo.org/communities/imagine-project/	No
iMagine Website	EGI Foundation	N/A	No	N/A	No	Copyright	CC-BY https://www.imagine-ai.eu/	No

Name	IP Owner(s)	KER	Confidential	Embargo Date	IPR Issues	Type of IP protection and licensing used	IP protection or license used	Joint Ownership Agreement Required
Promotional Material	EGI Foundation	N/A	No	N/A	No	Copyright	CC–BY	No

*Within the Horizon Europe framework, results are owned by the parties that generate them. In scenarios where the results are generated by multiple partners together, a Joint Ownership Agreement (JoA) may be necessary to document the ownership of the result. In the iMagine project, there are currently a couple of results, mainly concerning the improvements of components of the iMagine-AI platform, that more than one partner has developed. However, these components are being mainly developed in other projects (see Sideground IP). Therefore, the question of ownership and any need for JoA must be discussed and resolved within these projects, as there are entities involved in development who are not part of iMagine. Any improvements originating from the iMagine project will be freely assigned to the respective owners.

Business Modelling and Sustainability Analysis

Task 2.1 will organise a business modelling and sustainability workshop for all the use cases involved in the project. Considering the nature of the service and the fact that these services will not be commercialised, T2.1 looked at the concept of Business Modelling more broadly. Therefore, the five mature use cases were asked to delineate their requirements so that a more useful set of workshops could be organised benefiting them. The requirements collected from the use cases are listed in **Table 5**. Further information about the plans for these workshops and output from already conducted workshops will be presented in the D2.6 Business Model Analysis and Sustainability Plan due in M24.

Table 5 – Requirements Use Cases

	Requirements
All use cases	Sustainability beyond the project
Use case 1	Expanding the user base Understanding additional factors/information that is missing for potential users
Use case 2	Convince users to move away from existing traditional methods
Use case 3	Expanding the user base Increase the impact of the produced data/services. Sustainability of the services beyond the project
Use case 4	Improving the user experience Expanding the user base
Use case 5	Understand what could be missing for potential users

Exploitation Strategy

Exploitation is the use of results in further research and innovation activities other than those covered by the action concerned; this includes, among other things, commercial exploitation such as developing, creating, manufacturing and marketing a product or process, creating and providing a service, or in standardisation activities. The goals of this activity are to,

1. Collect partner-specific exploitation plans
2. Develop a collective exploitation strategy

A survey was distributed to the partners to collect their input for the exploitation plan. The outputs from the survey were used to identify exploitation channels for each of the KERs. An overview of these Exploitation channels for each of the KERs is presented in **Table 6**.

Table 6 – KER Exploitation Channel

KER	Exploitation Channel
All KERs	- Discoverable through Horizon Results Platform - Onboarded to EOSC* and AIoD Marketplaces - Open source and restriction-free licensing of components to promote exploitation - Inclusion in the service portfolio of consortium partners - Using the developed components for further research projects - Publications
KER#1 Marine litter assessment	- Operational service available to users - Using the developed mapping from initial litter categories to EU JointList categories for future research projects to achieve better standardisation - Contributing to indicators such as the EU Marine Strategy Framework Directive (MSFD) and the EU Green Deal
KER#2 ZooProcess	- Operational service available to users - Plankton indicators are used within several descriptors of the MSFD and WFD
KER#3 Marine ecosystem monitoring	- Operational service available to users - Essential Ocean Variables (EOVs) available from the EMSO sites, along with the annotated imagery, will contribute towards further biodiversity and ecosystem studies
KER#4 Oil spill detection	- Operational service available to users - Output will contribute to Policy developments and better mitigation strategies

*The option to onboard new services to the platform has been disabled as of 15 March 2024. With the introduction of the EOSC EU node[11], it is currently unknown what would be the requirements and process for onboarding services and providers to the EOSC EU Node. iMagine T2.3 will continue to monitor the developments and assess the situation as and when the new onboarding processes and requirements are communicated.

Impact Analysis

In the long term, the results of the iMagine project are expected to contribute strongly towards the aquatic sciences and accelerate progress towards healthy oceans, seas, and coastal and inland waters. Therefore, it is important to better understand, disseminate and communicate the impact of the project to all its relevant stakeholders. The goals of this activity will therefore be to,

1. Support all work packages in capturing the impact of their activities.
2. Support T2.2 in communicating this impact through success stories, recommendations, best practices, etc.

All the impact emerging from the project will be documented and presented through the periodic report and D2.9 Final Innovation Management and Exploitation Plan.

Plan for the next 15 months

- Monitor the engagement strategy and its effectiveness. Provide recommendations to the Communications team.
- Complete the KER Templates. Upload them to the Horizon Results Platform.
- Finalise the Sideground, Third-Party and Foreground IP templates.
- Organise the business modelling and sustainability workshops.
- Further elaborate on the exploitation strategy.
- Document the impact of the project.

Acronyms

AI Artificial Intelligence

ASB Activity and Service Board

CA Consortium Agreement

IEG Innovation and Exploitation Group

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[11]   https://open-science-cloud.ec.europa.eu/news/commission-announces-eosc-eu-nodes-web-presence

RI Research Infrastructures

AI4EU (project) AI on-demand platform to support research excellence in Europe

EOSC European Open Science Cloud

KER Key Exploitable Result

NGO Non-governmental organisation

SEAM Stakeholder Engagement Assessment Matrix

Appendix A: KER Templates