



Funded by  
the European Union



Ref. Ares(2023)2335901 - 31/03/2023

## TOWARD FULL IMPLEMENTATION OF THE KM3NeT RESEARCH INFRASTRUCTURE

KM3NeT – INFRADEV 2 – HORIZON – 101079679

### Kick-Off Meeting Report

#### KM3NeT-INFRADEV2 GRANT AGREEMENT DELIVERABLE: D1.1

Document identifier:	KM3NeT-INFRADEV2-WP1-D1.1-v.final
Date:	31 March 2023
Work package:	WP 1
Lead partner:	CNRS
Document status:	FINAL
Dissemination level:	PUBLIC
Document link:	TBC

#### **ABSTRACT**

The kick-off meeting for the KM3NeT – INFRADEV2 project was organised on the 27<sup>th</sup> of March 2023, as an online event on Zoom. It was hosted by the *Centre de Physique des Particules de Marseille* (CPPM), in Marseille, France. The Consortium was informed about the coordination of the project, its obligations and objectives. The Kick-Off meeting brought together the leaders of all the work packages with most of their team members and marked a very positive start of the project.

*Funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or the European Research Executive Agency (REA). Neither the European Union nor the REA can be held responsible for them.*

## I. COPYRIGHT NOTICE

Copyright © Members of the KM3NeT Collaboration.

## II. DELIVERY SLIP

	Name	Partner and WP	Date
From	Victoria CIARLET THAON	CNRS, WP1	
Author(s)	Victoria CIARLET THAON	CNRS, WP1	28/03/2023
Reviewed by	Paschal COYLE	CNRS, WP1	28/03/2023
Approved by	Paschal COYLE	CNRS, WP1	31/03/2023

## III. DOCUMENT LOG

Issue	Date	Comment	Author/Partner
1	13 March 2023	Draft of the document	Victoria Ciarlet Thaon (CNRS)
2	27 March 2023	Date of the meeting	Victoria Ciarlet Thaon (CNRS)
3	28 March 2023	Second draft of the document	Victoria Ciarlet Thaon (CNRS)
4	28 March 2023	Third draft of the document, with comments by Paschal Coyle.	Victoria Ciarlet Thaon (CNRS)
5	31 March 2023	Final version	Victoria Ciarlet Thaon (CNRS)

## IV. APPLICATION AREA

This document is a formal deliverable of the Grant Agreement of the project, applicable to all members of the KM3NeT – INFRADEV2 project, beneficiaries and third parties, as well as its collaborating projects.

## V. TERMINOLOGY

CPPM	Centre de Physique des Particules de Marseille
KM3NeT	Cubic Kilometer (km <sup>3</sup> ) Neutrino Telescope
ESFRI	European Strategy Forum on Research Infrastructures
PMB	Project Management Board
RAMS	Reliability, Availability, Maintainability and Safety
REA	European Research Executive Agency
WP	Work Package

## VI. LIST OF FIGURES

Figure 1 : KM3NeT-INFRADEV2 Kick-off Meeting invitation .....	6
Figure 2 : Artistic view of the KM3NeT deep-sea infrastructure .....	7
Figure 3 : KM3NeT-INFRADEV2 governance scheme .....	8
Figure 4 : Capitalisation and organisation of the WP4.....	10
Figure 5 : Thanks to the participants.....	12

## VII. LIST OF ANNEXES

Annex 1: List of participants.....	13
Annex 2 : Agenda of the KM3NeT-INFRADEV2 Kick-off Meeting .....	15

## VIII. PROJECT SUMMARY

The Kilometre Cube Neutrino Telescope (KM3NeT) is a large Research Infrastructure (RI) comprising a network of deep-sea neutrino telescopes in the Mediterranean Sea with user ports for earth and sea sciences instrumentation. During the EU-funded Design Study (2006-2020) and Preparatory Phase (2008-2012), a cost-effective technology was developed, deep-sea sites were selected and the Collaboration was formed. This proposal constitutes a second INFRADEV dedicated to KM3NeT in order to implement an efficient framework for mass production of KM3NeT components, accelerate completion of its construction and provide a sustainable solution for the operation of the RI during ten or more years. Following the appearance of KM3NeT on the 2016 ESFRI Roadmap and in line with the recommendations of the Assessment Expert Group, this project addresses the Coordination and Support Actions (CSA) to prepare a legal entity for KM3NeT, accelerate its implementation, establish open access to the RI and ensure its sustainability by transforming activities with a negative impact on the environment and the evaluation of the collaboration's socio-economic impact.

## IX. EXECUTIVE SUMMARY

The Kick-off Meeting for the KM3NeT-INFRADEV2 project was organised on Monday 27 March 2023 as an online event in order to participate in the collaboration efforts towards a more sustainable travel and mobility policy. The possibility to come to the CPPM, the laboratory where the event was hosted, was opened for those who wanted to meet in person. The meeting consisted of three parts: a general introduction about the project and the presentations of all WP, public to all staff interested, followed by a closed organisational workshop for all WP members. The participants were informed about the KM3NeT-INFRADEV2 coordination, obligations regarding the REA Grant Agreement, plan and objectives. The organisational workshop between all WP members was an opportunity to deepen the management of the project in order to ensure its successful completion throughout its duration.

## X. TABLE OF CONTENTS

I.	COPYRIGHT NOTICE .....	2
II.	DELIVERY SLIP.....	2
III.	DOCUMENT LOG .....	2
IV.	APPLICATION AREA .....	2
V.	TERMINOLOGY.....	3
VI.	LIST OF FIGURES .....	3
VII.	LIST OF ANNEXES.....	3
VIII.	PROJECT SUMMARY .....	4
IX.	EXECUTIVE SUMMARY .....	4
X.	TABLE OF CONTENTS.....	5
	1. Introduction.....	6
	2. Part 1: Opening of the project .....	7
	3. Part 2: WP Presentations .....	9
	4. Part 3: Organisational Workshop .....	11
	5. Conclusion .....	12
XI.	REFERENCES .....	13
XII.	ANNEXES.....	13

## 1. Introduction

The KM3NeT-INFRADEV2 project, funded under the Grant Agreement n°101079679, is a continuation of the previous KM3NeT-INFRADEV project, which also aimed to give the neutrino telescope a legal structure. Both projects brought together the same six partners, who are therefore used to working with each other. Moreover, they are part of the broader scope of the KM3Net Collaboration, initiated in 2013. Therefore, the KM3NeT-INFRADEV2 Kick-off Meeting was open to all collaboration members while an online meeting was not an obstacle to the successful running of the event. However, some partners from the CNRS met in CPPM, (CNRS, Marseille, France) in order to monitor and follow the meeting together.

The Kick-off Meeting was organised in three parts. The first part consisted in a general introduction of the project. It was followed by the presentations of all WP by the WP leaders. During these talks, an overview was given of the project coordination, obligation, plan and objectives. Following this public part, all WP members held an organisational workshop to align WP activities and further agree on the project management and governance tools.

The agenda of the event (Annex 1) is available on the KM3NeT-INFRADEV2 Indico page, along with the event invitation (Figure 1), the list of registered participants, slides of the presentations that were given and a summary of the lessons learned: <https://indico.cern.ch/event/1259427/>.

Figure 1 : KM3NeT-INFRADEV2 Kick-off Meeting invitation

The figure shows two related documents for the KM3NeT-INFRADEV2 Kick-off Meeting. On the left is a poster for the event, and on the right is an agenda slide.

**Poster Details:**

- Title:** KM3NeT-INFRADEV2 KICK-OFF MEETING
- Date:** the 27th of March 2023 - 1:30pm to 5:30pm
- Format:** Online event
- Image:** A large spherical detector with multiple photomultiplier tubes (PMTs) is suspended in the air over the sea.
- Logos:** KM3NeT INFRADEV 2 logo and logos of funding partners: European Union, CNRS, FAU, INFN, NWO, DEMOCRITOS, and CSIC.

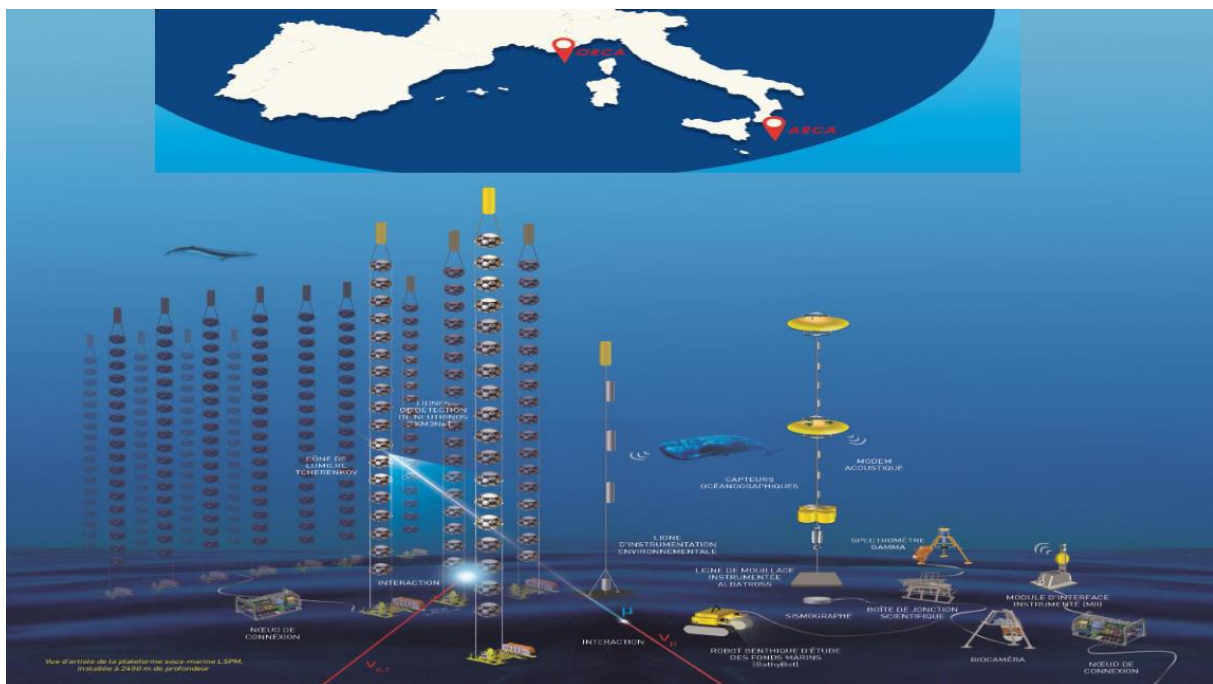
**Agenda Slide Details:**

- Title:** AGENDA & INFORMATION
- Section 1: INTRODUCTION - 1:30pm**
  - Opening, by Paschal Coyle (CNRS)
  - General Presentation, by REA Project Officer
  - Coordination & Management Presentation, by Victoria Ciarlet Thaon (CNRS)
- Section 2: PART I - 2:45pm**
  - WP2 Presentation - Prepare Legal Entity, by Piera Sapienza (INFN)
  - WP3 Presentation - Accelerating Implementation, by Miles Lindsey Clark (CNRS)
  - WP4 Presentation - Data Management & Open Science, by Jutta Schnabel (FAU)
  - WP5 Presentation - Sustainability & socio-economic impact, by Christos Markou (NCSR D)
- Section 3: PART II - 4:30pm**
  - Organisational Workshop, by Paschal Coyle & Victoria Ciarlet Thaon (CNRS)
- Additional Info:** Zoom link and More information on Indico.

## 2. Part 1: Opening of the project

The first part of the Kick-Off Meeting consisted of a general introduction to present the project, its objectives and overall coordination. **Paschal Coyle, the spokesperson of the KM3NeT Collaboration and the scientist in charge of the INFRADEV2 project, opened the event** by reminding the history of KM3NeT, the needs addressed by the current project and the expected results of this new step towards full implementation of the KM3NeT Research Infrastructure. His presentation was an opportunity to recall the contribution of KM3NeT to neutrino research but also to earth and marine sciences. Indeed, the two KM3NeT sites (ARCA in Sicily and ORCA in France), which are located deep in the ocean, also host detectors dedicated to the understanding of the marine environment (Figure 2). Paschal Coyle also highlighted the relationship with the EU and the European funding provided to the project since its beginning, thus underlining the fundamental role that the European institutions have played in the successful development of KM3NeT. For example, the KM3NeT experiment has been selected by the European Strategy Forum on Research Infrastructures (ESFRI) roadmaps for the 2006-2016 and 2016-2026 periods.

Figure 2 : Artistic view of the KM3NeT deep-sea infrastructure



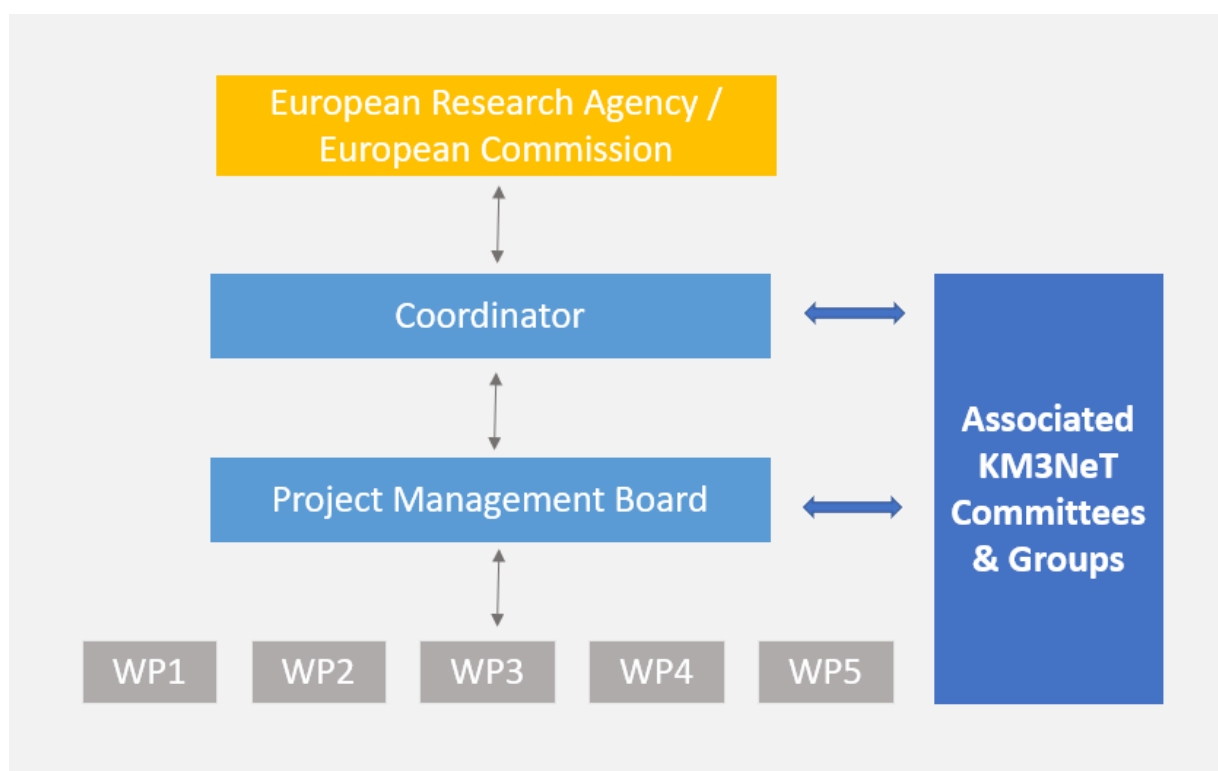
© Camille Combes, Agence Ouvreboîte

After this few opening words, **Ioannis Andredakis, the REA Project Officer**, reminded the consortium about the role of the REA along with the EU expectations and obligations within the Grant Agreement funding. Ioannis Andredakis also gave important insights regarding the periodic reporting and the submission of deliverables in order to better explain the European procedures. This presentation helped to enlighten the partners on their rights and

responsibilities within the project as well as to give them a European perspective on the content of their work.

Finally, **Victoria Ciarlet Thaon, the European Project Manager of KM3NeT-INFRADEV 2 at CPPM (CNRS)**, gave a talk about the project management and coordination by explaining to the partners her missions within WP1. This short reminder was the opportunity to give an overall view about the organisational, administrative, financial and legal aspects of the project as well as its communication. The governance of the project was also presented to underline the specificities of this project, included both within the European framework and the KM3NeT international collaboration (Figure 3).

*Figure 3 : KM3NeT-INFRADEV2 governance scheme*



These three preliminary presentations were followed by a time for exchanges, during which the partners were able to ask for clarifications or make remarks in order to improve the management of the project. In conclusion, this first part was a great opportunity to clarify the general aspects of the project, before proceeding to the specific presentations of each WP.



### 3. Part 2: WP Presentations

The second part of the KM3NeT-INFRADEV2 Kick-off Meeting consisted in the presentation of all WPs by each WP leader. It was the opportunity for them to introduce themselves and their team members, to present the content, objectives and expected results of their work, to remind the scheduled deliverables and milestones as well as the progress made so far.

The session was opened by **Piera Sapienza, researcher at the *Laboratori Nazionali del Sud (INFN, Catania, Italy)* and leader of the WP2**, which aims to create a legal entity for the KM3NeT Research Infrastructure. She first exposed the motivations behind this intention:

- An increased possibility of fundraising
- An easier participation to EU calls and grant
- An increased visibility at European scale
- A graceful exit from the ESFRI roadmap
- The possibility to move from project to landmark status
- A better organised internal structure
- A stronger commitment of participating agencies and institutions

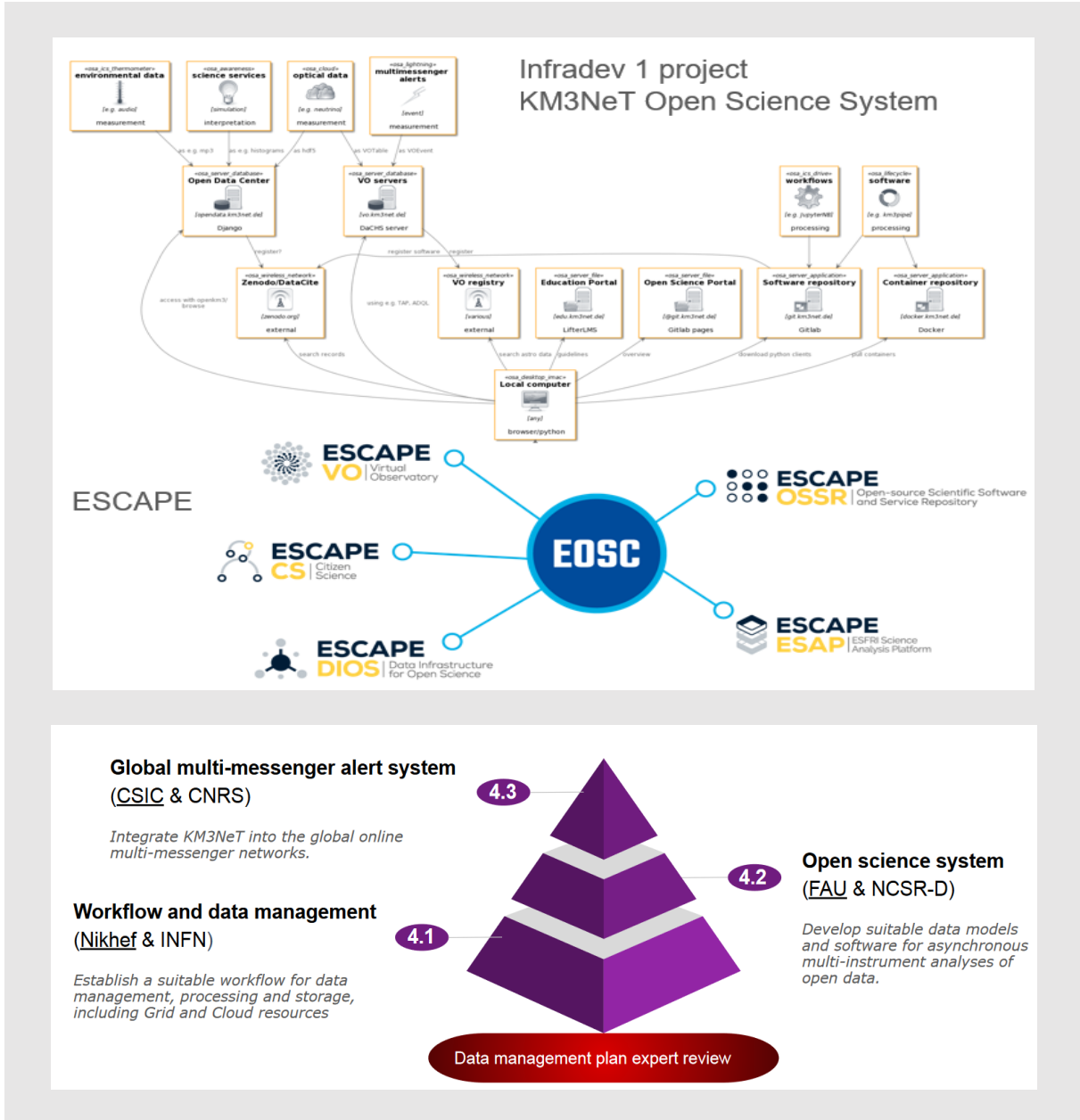
She also noted that the creation of a legal entity was strongly encouraged by the KM3NeT Collaboration committees. This support, along with the work done during the first INFRADEV project, has enabled the current WP2 working group to make significant progress in the selection and drafting of statutes of the future KM3NeT legal entity.

Then, **Miles Lindsey Clark, KM3NeT Technical Project Manager at the *Laboratoire d'Astroparticule et Cosmologie (CNRS, Paris, France)* and leader of the WP3**, explained how the work done by his team will participate to accelerate the implementation of KM3NeT in France and Italy. In the context of global competition between different experiments in neutrino research, respecting the timeline for the integration of the detector is particularly important. Therefore, INFRADEV2 appears to be a great opportunity to obtain the necessary expertise and workforce in order to meet the objectives set. Indeed, thanks to the project, two people are to be recruited to assist the Project Office of the KM3NeT Collaboration, a Procurement Officer and a RAMS Officer. Miles Lindsey Clark presented their profile to better understand how the project will contribute to reach a mass production paradigm, centralise the management of procurements and improve the reliability and availability of the detector.

As for **WP4**, its co-leader **Jutta Schnabel, researcher at the Erlangen Centre for Astroparticle Physics (FAU, Erlangen, Germany)**, presented the Data Management and Open Science practices developed within the project and in relation to the European obligations. She reminded that the INFRADEV2 project was built on previous European experiences, such as the first INFRADEV project or the ESCAPE project (Figure 4). These experiences are a great start in order to ensure, for the full KM3NeT detector, an appropriate data management and processing environment, an online and offline data processing, the production of simulation

data storage, a provision of open-access data products and software and, finally, contributions to multi-messenger online global networks.

Figure 4 : Capitalisation and organisation of the WP4



Finally, **Christos Markou, leader of the WP5 and Director of the Institute of Nuclear and Particle Physics (NCSR D, Agia Paraskevi, Greece)** detailed the strategy followed by the partners towards more sustainable procedures and to maximise the positive socio-economic impact of the KM3NeT Research Infrastructure. Following the growing sensitivity and awareness of the scientific community towards issues concerning the environmental impact of their activities, the KM3NeT first INFRADEV project allowed the development of a zero-carbon footprint strategy for the experiment. Thanks to the INFRADEV2 project, these efforts will be pursued by:

- Investigating possible solutions and identify procedures for transforming the daily activities of the KM3NeT community to a sustainable configuration
- Investigating the potential impact of the KM3NeT decommissioning on the environment and define procedures for eliminating adverse issues
- Defining recycling schemes of the KM3NeT infrastructure and the end of the project lifetime

Regarding the socio-economic impact of KM3NeT, studies about the expected socio-economic impact in the installation sites will be conducted and the contacts with industries for the development of new technologies will be reinforced.

All these talks were followed by a time for discussion. The participants showed great interest in the topics addressed as well as enthusiasm for the opportunities of progress that the KM3NeT-INFRADEV2 project can provide for the whole collaboration.

## 4. Part 3: Organisational Workshop

Held between all WP members and animated by Paschal Coyle and Victoria Ciarlet Thaon, the third part of the KM3NeT-INFRADEV2 Kick-off Meeting consisted in an organisational workshop to improve the project management and plan its next steps toward completion.

First, the constitution of WP groups was confirmed by all attending partners, who also discussed a common deliverable policy. This moment of exchange was an opportunity for the partners of the project to share their ideas on how to improve the communication within the consortium and on how to facilitate the workflow. Finally, the next important steps and meetings were planned, thereby marking a productive start for the project and for its successful implementation. The minutes of this workshop will be available for all members.

## 5. Conclusion

The KM3NeT-INFRADEV2 Kick-off Meeting brought together twenty-five participants. The general introduction was a great occasion for all members to better understand the history, objectives and the management of the project in the framework of the European Horizon programme. The WP presentations clarified the activities that the project will allow to be implemented as well as their expected results and impacts.

The Zoom format made it possible to limit the travel of the agents involved in the project and thus to be in line with the sustainable strategy desired for the KM3NeT Collaboration. Most of the participants being used to work together regularly and for several years, an online event was not an obstacle to an effective participation and communication. Given these considerations, many KM3NeT-INFRADEV2 meetings will be held remotely.

The event was closed by Paschal Coyle who thanked all attendees for their participation (Figure 5) and gave some encouraging words on the continuation of the project and its possible impact in favour of the full implementation of the KM3NeT Research infrastructure.

*Figure 5 : Thanks to the participants*



## XI. REFERENCES

Adrián-Martinez, S. and al. (2016). “Letter of intent for KM3NeT”, *Journal of Physics G: Nuclear and Particle Physics*, 43-8. Available at: <https://iopscience.iop.org/article/10.1088/0954-3899/43/8/084001/pdf>

ESCAPE. (n.d.). “KM3NeT”, *projectescape.eu*. Accessed on 28/03/2023 at: <https://projectescape.eu/science-projects/km3net>,

ESFRI. (2006). *European Roadmaps for Research Infrastructures. Report 2006*. Available at: [https://www.esfri.eu/sites/default/files/esfri\\_roadmap\\_2006\\_en.pdf](https://www.esfri.eu/sites/default/files/esfri_roadmap_2006_en.pdf)

ESFRI. (2016). *Strategy Report on Research Infrastructures. Roadmap 2016*. Available at: [https://www.esfri.eu/sites/default/files/20160309\\_ROADMAP\\_browsable.pdf](https://www.esfri.eu/sites/default/files/20160309_ROADMAP_browsable.pdf)

ESFRI. (2021). *2016 ESFRI Projects. Overall conclusions and recommendations from the ESFRI monitoring exercise*. Available at: [https://www.esfri.eu/sites/default/files/Public\\_report\\_from\\_monitoring\\_of\\_2016\\_ESFRI\\_Projects.pdf](https://www.esfri.eu/sites/default/files/Public_report_from_monitoring_of_2016_ESFRI_Projects.pdf)

Grindberg, V.; Janhke, K.; Lindenstruth, V.; Markou, C.; Funk, S.; Katz, U. and Roth, M. (2021). “Sustainability in astroparticles physics”, *Proceedings of Science*, 14-01. Available at: <https://pos.sissa.it/395/1401/pdf>

KM3NeT Collaboration. (n.d.). “KM3Net INFRADEV Projects outputs”, *km3net.org*. Accessed on 28/03/2023 at: <https://www.km3net.org/km3net-infraDEV/project-outputs/>

## XII. ANNEXES

### Annex 1: List of participants

	Name	Entity	On site or remotely
1	Andredakis Ioannis	REA Project Officer	Remotely
2	Bouwhuis Mieke	Nikhef (NWO I)	Remotely
3	Cecchini Vincent	Nikhef (NWO I)	Remotely
4	Chiarusi Tommaso	Bologna Section (INFN)	Remotely

5	Ciarlet Thaon Victoria	CPPM (CNRS)	On site
6	Circella Marco	Bari Section (INFN)	Remotely
7	Colonges Stéphane	APC (CNRS)	Remotely
8	Coniglione Rosa	LNS (INFN)	Remotely
9	Coyle Paschal	CPPM (CNRS)	On site
10	Dornic Damien	CPPM (CNRS)	On site
11	Drakopoulou Evangelia	INPP (NCSR D)	Remotely
12	Graf Kay	ECAP (FAU)	Remotely
13	Heijboer Aart	Nikhef (NWO I)	Remotely
14	Katz Uli	ECAP (FAU)	Remotely
15	Lindsey Clark Miles	APC (CNRS)	Remotely
16	Lumb Nick	CPPM (CNRS)	Remotely
17	Markou Christos	INPP (NCSR D)	Remotely
18	Pantat Brigitte	CPPM (CNRS)	On site
19	Riccobene Giorgio	LNS (INFN)	Remotely
20	Romano Marco	LNS (INFN)	Remotely
21	Salesa Francisco	IFIC (CSIC)	Remotely
22	Sapienza Piera	LNS (INFN)	Remotely
23	Schnabel Jutta	ECAP (FAU)	Remotely
24	Stavropoulos Dimitris	INPP (NCSR D)	Remotely
25	Vazquez de Solsa Fernandez Francisco	Nikhef (NWO I)	Remotely

## Annex 2 : Agenda of the KM3NeT-INFRADEV2 Kick-off Meeting

### Kick-Off Meeting ✎

📅 lundi 27 mars 2023, 13:25 → 17:35 Europe/Zurich

📎 KM3NeT-INFRADEV... 📄 Zoom details.pdf 🔗 Zoom link

**Inscription** 🔒 Vous êtes inscrit(e) à cet événement Vérifier les détails

**Participants** F Francisco Salesa Greus F Francisco Vazquez de Sola J Jutta Schnabel M Mieke Bouwhuis V Victoria CIARLET THAON

13:30	→ 14:30	<b>Introduction</b>	✎
13:30	→ 13:45	<b>Opening</b> <small>Orateur: M. Paschal Coyle (Researcher at CPPM, Marseille, France (CNRS))</small>	🕒 15m ✎
13:45	→ 14:05	<b>General Presentation</b> <small>Orateur: REA Project Officer</small>	🕒 20m ✎
14:05	→ 14:20	<b>Coordination and Management Presentation</b> <small>Orateur: Mme Victoria Ciarlet Thaon (European Project Manager at CPPM, Marseille, France (CNRS))</small>	🕒 15m ✎
14:20	→ 14:30	<b>Questions</b>	🕒 10m ✎
14:30	→ 14:45	<b>Break</b>	🕒 15m
14:45	→ 16:15	<b>Part 1: Work Packages Presentations</b>	✎
14:45	→ 15:05	<b>WP2 Presentation - Prepare Legal Entity</b> <small>Orateur: Mme Piera Sapienza (Researcher at LNS, Catania, Italy (INFN))</small>	🕒 20m ✎
15:05	→ 15:25	<b>WP3 Presentation - Accelerating Implementation</b> <small>Orateur: M. Miles Lindsey Clark (Technical Project Manager at APC, Paris, France (CNRS))</small>	🕒 20m ✎
15:25	→ 15:45	<b>WP4 Presentation - Data Management and Open Science</b> <small>Orateur: Dr Jutta Schnabel (Researcher at ECAP, Erlangen, Germany (FAU))</small>	🕒 20m ✎
15:45	→ 16:05	<b>WP5 Presentation - Sustainability and socio-economic Impact</b> <small>Orateur: Dr Christos Markou (Director of INPP, Agia Paraskevi, Greece (NCSR'D*))</small>	🕒 20m ✎
16:05	→ 16:15	<b>Questions</b>	🕒 10m ✎
16:15	→ 16:30	<b>Break</b>	🕒 15m
16:30	→ 17:30	<b>Part 2: Organisational Workshop</b> <small>Présidents de session: M. Paschal Coyle (Researcher at CPPM, Marseille, France (CNRS)), Mme Victoria Ciarlet Thaon (European Project Manager at CPPM, Marseille, France (CNRS))</small>	✎