Memorandum of Understanding between EGI Foundation and KM3NeT the next generation neutrino

<u>telescopes</u>





# Memorandum of Understanding between EGI Foundation and

## **KM3NeT - Research Infrastructure**

This Memorandum of Understanding ("MoU") is made between:

EGI Foundation, a foundation established under Dutch law to coordinate EGI (abbreviated as "EGI"), is a federation of national and institutional digital infrastructures that provides researchers worldwide with integrated, scalable computing and data services. Since its emergence, EGI leverages the capabilities of multiple organisations, offering secure, reliable, and cost-effective digital services in a federation of cloud compute, high throughput compute and high performance compute capabilities. By connecting thousands of experts, technologies, and facilities, EGI enables researchers to tap into distributed computing, storage, and analytics resources, fostering unprecedented levels of collaboration, experimentation, and innovation,

#### and

The Cubic Kilometre Neutrino Telescope, or KM3NeT, is a European Research Infrastructure located at the bottom of the Mediterranean sea. KM3NeT encompasses three distinct detector configurations: **ARCA (Astroparticle Research with Cosmics in the Abyss)**, located off the coast of Sicily, Italy, and optimized for high-energy neutrino astronomy, and **ORCA (Oscillation Research with Cosmics in the Abyss)**, situated near Toulon, France, and designed to study neutrino properties, including oscillations, with a focus on low-energy neutrinos and KM3NeT-Gr for complementary neutrino research and, multi-disciplinary marine and environmental science.

EGI and KM3NeT shall hereinafter be referred to individually as a "Party" and collectively as the "Parties."

This MoU is composed of the following Articles and Annexes.

Annexes have the same validity as this MoU and together constitute the entire understanding and rights and obligations covering the cooperation accepted by the Parties under this MoU. Annexes may be amended following the provisions of Article 7. Amendments

Article 1. Parties	4
1.1 EGI Foundation	4
1.2 KM3NeT the next generation neutrino telescopes	6
Article 2. Purpose and Scope	7
Article 3. Communications and Contact Information	7
EGI Foundation contact	8
KM3NeT Research Infrastructure contact	8
Article 4. Rights and Responsibilities	8
4.1 General	8
4.2 Personnel	8
4.3 Intellectual property rights and licence PROPERTY RIGHTS AND LICENCE	9
4.4 Ownership of results	9
4.5 Public relations	10
4.6 Confidentiality of information	10
4.7 Liability	10
4.8 Participation in similar activities	11
Article 5. Funding	11
Article 6. Entry into Force, Duration and Termination	11
Article 7. Amendments	11
Article 8. Miscellanea	12
Article 9. Language	12
Article 14. Governing Law and Dispute Resolution	12
EGI Foundation	14
Annex 1. Joint Work plan	15
Joint Activity 1. Delivery of infrastructure services for the KM3NeT Research Infrastructure	15
Joint Activity 2. Scale-up the computing capacity allocation with the involvement o the EU Resource Centers of the EGI Federation	
Joint Activity 3. Jointly support research communities	18
Joint Activity 4. Federate new Data and Resource Centers in EGI	18
Joint Activity 5. Impact, dissemination, outreach	19

## ARTICLE 1. PARTIES

#### **1.1 EGI Foundation**

EGI is the scientific computing infrastructure that develops and delivers open ICT solutions for advanced computing and data analytics in research and innovation to support all researchers to have seamless access to services, resources and expertise to collaborate and conduct world-class research and innovation.

The EGI Federation is an international infrastructure that provides advanced computing and data analytics services for research and innovation. The federation is composed of providers from national/community initiatives forming one of the largest distributed computing infrastructures for researchers. EGI delivers technical and support services at European and global scale including high-throughput and cloud computing, storage and data management, analytics, consultancy and support, training and co-development.

The EGI Foundation is a not-for-profit foundation established under Dutch law to coordinate the EGI federation (abbreviated as "EGI"), an international collaboration that federates the digital capabilities, resources and expertise of national and international research communities in Europe and worldwide. The main goal is to empower researchers from all disciplines to collaborate and to carry out data- and compute-intensive science and innovation.

The EGI Foundation has participants and associated participants drawn from representatives of national e-infrastructure consortiums (NGIs), EIROs, ERICs, and other legal entities. These entities provide the physical resources, shared services and innovative technical solutions that enable the EGI Federation to deliver, improve and innovate services for communities.

- **Compute Continuum**: EGI advances federation approaches for Cloud, High-Throughput, and HPC, creating a seamless, pan-European compute continuum. Collaborations with initiatives like EuroHPC and PRACE ensure complementary support without duplicating specialised HPC efforts. This provides flexible, scalable options for diverse workflows, enabling next-generation data-driven research.
- Artificial Intelligence: EGI will provide frameworks for AI model training, inference, and large-scale data analytics. By integrating domain-specific workflows and novel machine learning techniques, EGI boosts Europe's capacity for data-driven research, helping scientists adopt and scale AI solutions.
- Data Management and Reusability: EGI will advance research and innovation in high-performance, distributed storage and data management, integrating cutting-edge analytics and provenance mechanisms. By improving data discoverability, reusability, and reproducibility, EGI empowers researchers to unlock greater value from large-scale datasets.
- **Data Spaces**: EGI will help establish trusted data spaces, integrating diverse sources—national, regional, or thematic—and ensuring secure sharing of sensitive or large-scale data. This approach fosters cross-domain collaboration while preserving data sovereignty and quality.

- **Digital Twins**: EGI will supply foundational technologies—simulation engines, real-time analytics, and metadata frameworks—to support the creation and operation of scientific digital twins. These digital replicas enable more accurate modelling, data-driven scenario testing, and faster innovation.
- **Tailored Solutions for Thematic Infrastructures**: EGI will co-develop domain-specific services with RIs, ensuring agile responses to evolving scientific needs and fostering rapid experimentation. This collaborative approach enriches the ecosystem with targeted solutions that amplify scientific impact.
- Alignment with EOSC: Leveraging its distributed compute platform and federation expertise, EGI will seamlessly integrate research data and services from diverse RIs into the European Open Science Cloud. This fosters a coherent delivery model, robust support, and open access—streamlining the path from discovery to innovation in European science.
- Flexible Resource Allocation: Through open, adaptable mechanisms—such as Virtual Access or token-based models—EGI ensures researchers can transparently select and combine the services they need. This aligns with the EOSC vision of broad, equitable access to advanced digital tools and resources.
- **Skills Building**: Targeted training programmes and expert support networks will strengthen digital competencies, helping researchers optimise application development, resource federation and advanced analytics in complex, distributed environments.

Further information can be found at: <a href="http://www.egi.eu/about/">www.egi.eu/about/</a>

#### **1.2 KM3NeT the next generation neutrino telescopes**

KM3NeT is a three-site Research Infrastructure housing the next-generation neutrino telescopes located in the deepest seas of the Mediterranean. Once completed, the telescopes will have detector volumes between a megaton and several cubic kilometers of clear sea water. The three suitable deep-sea sites have been identified, namely, from west to east:

- ORCA (KM3NeT-Fr), off-shore Toulon (France);
- ARCA (KM3NeT-It), off-shore Portopalo di Capo Passero (Italy);
- KM3NeT-Gr, off-shore Pylos (Greece).

The aim of the KM3NeT telescopes is to explore the universe through high-energy neutrino astronomy, with ARCA focusing on astrophysical neutrinos, ORCA studying neutrino properties, and KM3NeT-Gr supporting complementary neutrino research along with multi-disciplinary marine and environmental science.

Further information can be found at: <a href="https://www.km3net.org/">https://www.km3net.org/</a>

## ARTICLE 2. PURPOSE AND SCOPE

The purpose of this Memorandum of Understanding (MoU) is to outline the areas of common interest where the EGI Federation and the KM3NeT Research Infrastructure can actively collaborate, and define a framework of long-term collaboration between the Parties to enable the vision of jointly providing and using sustainable e-Infrastructure services

The following areas of common interest have been identified as part of this MoU:

- Delivery of infrastructure services for the KM3NeT the next generation neutrino telescopes.
- Scale-up the computing capacity allocation with the involvement of the EU Data Centers of the EGI Federation.
- Joint support for research communities.
- Federate new Data Centers supporting the KM3NeT Research Infrastructure.
- Jointly organise forums, events, and activities beneficial for the execution of the Joint Work Plan outlined in this MoU.
- Disseminate success stories based on the joint work.

A detailed collaboration plan (the "Joint Work Plan") is defined in Annex 1. Joint Work plan.

#### **ARTICLE 3. COMMUNICATIONS AND CONTACT INFORMATION**

The Parties shall keep each other informed on relevant activities concerning the areas of common interest described in Annex I.. Joint working groups may be established to examine in detail proposals in areas assigned to them by the Parties referred to in the Joint Work Plan, and to make recommendations to the Parties.

The Parties acknowledge their obligations taken by this MoU and by the Joint Activity Plan to disseminate their results, and the task to support and promote the coherent and coordinated dissemination of information on activities such as joint events and workshops.

The Parties shall support efforts by providing relevant inputs and ensuring attendance at events as required by the Joint Activity Plan.

No Party is allowed to publish or allow the publishing of the other Party's results unless the owner Party agrees to the publication.

Each Party shall designate a "point of contact" that shall be responsible for monitoring the implementation of this MoU and for taking measures to assist in the further development of cooperative activities. Such points of contact shall be the ordinary channel for the Parties' communication of proposals for cooperation.

Any approvals, notices, and other communications between the Parties under this MoU shall be sent to the applicable Party as follows

Name and name:	family	Giuseppe La	Rocca			
Role:		Community Support Team Lead.				
Address:		Science Park 140				
		ZIP Code:	1098 XG	City:	Amsterdam	
		Country:	The Netherlands			
E-mail		giuseppe.larocca@egi.eu				
Tel:		0031.6.2786.0848				

#### **EGI Foundation contact**

#### KM3NeT Research Infrastructure contact

Name and famil name:	y Riccardo Br	uno					
Role:	Computing	Computing Working Group Coordinator					
Address:	Via Santa So	Via Santa Sofia, 64					
	<b>ZIP Code:</b>	95123	City:	Catania			
	Country:	Italy					
E-mail	riccardo.bru	riccardo.bruno@ct.infn.it					
Tel:	+39 095 37	+39 095 378 5472					

Questions of principles or problems that cannot be solved at primary contact level are escalated to the director of two parties or the highest role applicable.

#### ARTICLE 4. RIGHTS AND RESPONSIBILITIES

#### 4.1 General

Each Party agrees to adhere to applicable policies and procedures relating to the use of the production infrastructure.

A Party which makes material, equipment or components available to the other Party, for the purposes of activities under this MoU, shall remain the proprietor of such material, equipment or components.

Each Party shall remain fully responsible for its own activities, including the fulfilment of its obligations.

#### 4.2 Personnel

Each Party shall be solely responsible for any personnel hired to carry out work under this MoU.

In case personnel employed by one Party temporarily carry out work under this MoU on the premises of another (hereafter referred to as "secondment"), the following provisions shall apply: The personnel seconded shall be subject to all regulations, including, in particular, safety regulations, applicable on the site of the Party they are seconded to.

The personnel seconded by a Party to another shall remain employees of the Party having seconded them and such Party, as employer, shall bear exclusive responsibility for the payment of salary and for the procurement of adequate social security and insurance, including third-party liability insurance and health insurance.

Unless otherwise agreed by the Parties concerned, Intellectual Property Rights generated by personnel seconded by a Party to another shall be owned by the Party having seconded such personnel.

## 4.3 Intellectual property rights and licence PROPERTY RIGHTS AND LICENCE

"Intellectual Property Rights" shall mean all intellectual creations including but not limited to inventions, know-how, layouts, drawings, designs, specifications, computer programs, reports, processes, protocols, calculations and any other matter and protected by intellectual property rights, whether registered or not, including patents, registered designs, copyrights, design rights and all similar proprietary rights and applications for protection thereof.

Intellectual property rights generated by a Party under this MoU shall be the property of that Party who shall be free to protect, transfer and use such Intellectual Property Rights as it deems fit.

Notwithstanding the foregoing, each Party shall grant the other a non-exclusive royalty-free licence to use the Intellectual Property Rights generated by the Party under this MoU for the implementation of the Joint Work Plan. Such licence shall include the right to sublicense the entities involved in the Joint Activity Plan.

#### 4.4 Ownership of results

Results are owned by the Party that generates them.

The Parties give each other – under fair and reasonable conditions – access to results of this MoU needed for exploiting their own results.

Results that were jointly generated by both Parties will be jointly owned by the Parties, hereinafter referred to as ("Jointly Owned Results") and each of the Parties shall be free to use these Jointly Owned Results for non-commercial research activities on a royalty-free basis, and without requiring the prior consent of the other joint owner(s).

Each of the joint owners shall be entitled to otherwise commercially exploit the Jointly Owned Results and to grant non-exclusive licences to third parties (without any right to sub-license), if the other joint owners are given: (a) at least 45 calendar days advance notice; and (b) Fair and Reasonable compensation. Each Party shall be entitled to disclose such Jointly Owned Results without restrictions unless such Jointly Owned Results are confidential information or contain a Joint Invention in which case no disclosure must be made prior to the filing of a priority application. With respect to any Joint Invention resulting from this MoU (i.e. any invention jointly made by employees of both Parties), the features of which cannot be separately applied for as Intellectual Property Rights and which are eligible for statutory protection requiring an application or registration (herein referred to as "Joint Invention"), the Parties shall agree on which Party will carry out any filing as well as any further details with regard to persecuting and maintaining relevant patent applications.

#### **4.5 Public relations**

Any publication by a Party resulting from the activities carried out under this MoU shall be subject to prior agreement of the other Party which should not be unreasonably withheld.

The Parties may each release information to the public, provided it is not confidential and related only to its own part of the activities under this MoU. In cases where the activities of the other Party are concerned, prior consultation shall be sought. In all relevant public relations activities, the contribution of each Party related to activities covered by this MoU shall be duly acknowledged.

### 4.6 Confidentiality of information

The Parties may disclose to each other information that the disclosing Party deems confidential, and which is:

- (i) in writing and marked "confidential", or
- (ii) disclosed orally, and identified as confidential when disclosed, and reduced in writing and marked "confidential" within fifteen (15) days of the oral disclosure (hereafter referred to as "Confidential Information"). Confidential Information shall be held in confidence and shall not be disclosed by the receiving Party to any third party without the prior written consent of the disclosing Party.

Notwithstanding the foregoing, a Party is entitled to disclose Confidential Information which it is required by law to disclose or which, in a lawful manner, it has obtained from a third party without any obligation of confidentiality, or which it has developed independently from any Confidential Information received under this MoU, or which has become public knowledge other than as a result of a breach on its part of these confidentiality provisions.

#### 4.7 Liability

Each Party shall use reasonable endeavours to ensure the accuracy of any information or materials it supplies to the other Party and of any other contribution it makes hereunder and promptly to correct any error therein of which it is notified. The supplying Party shall be under no obligation or liability other than as stated above and no warranty or representation of any kind is made, given or to be implied as to the sufficiency, accuracy or fitness for a particular purpose of such information, materials or other contribution or as to the absence of any infringement of any proprietary rights of third parties through the possession or use of such information, materials or other contribution. The recipient Party shall be entirely responsible for its use of such information, materials or other contribution and shall hold the other Party free and harmless and indemnify it for any loss or damage with regard thereto.

Except in case of gross negligence or wilful misconduct, neither Party shall be liable for any indirect or consequential damages of the other Party, including loss of profit or interest, under any legal cause whatsoever and on account of whatsoever reason.

#### 4.8 Participation in similar activities

Parties are not prevented by this MoU from participating in activities similar to those described in this document with third parties. There is no obligation to disclose any similar activity to the other Party. However, when considered of mutual benefit, both Parties are encouraged to involve the other Party in similar activities to the goal of disseminating the knowledge about both Parties.

### ARTICLE 5. FUNDING

Each Party shall bear the costs of discharging its respective responsibilities under this MoU, including travel and subsistence of its own personnel and transportation of goods and equipment and associated documentation, unless otherwise agreed in this MoU or by the parties on a case-by-case basis.

Each Party shall make available free of charge to the other Party any office space or meeting facility needed for the joint activities.

The Parties' obligations hereunder are subject to their respective funding procedures and the availability of appropriate funds. Should either Party encounter budgetary problems in the course of its respective internal procedures that may affect the activities carried out under this MoU, the Party shall notify and consult with the other Party in a timely manner in order to minimise the negative impact of such problems on the cooperation. The Parties shall jointly look for mutually agreeable solutions.

In order to reduce the impact on travel costs, face-to-face meetings should be co-located with other events that participants are likely to attend. Meeting via teleconferences should be considered when the nature of the discussion does not strictly require a face-to-face presence.

#### ARTICLE 6. ENTRY INTO FORCE, DURATION AND TERMINATION

This MoU will enter into force when signed by the authorised representatives of the Parties.

Either Party may terminate this MoU for any reason upon 30 days written notice to the other Party.

In the event of termination, the Parties shall endeavour to reach agreement on terms and conditions to minimise negative impacts on the other Party. In the event of the continuation of the present cooperation, the MoU may be extended and/or amended by mutual agreement in writing.

#### ARTICLE 7. AMENDMENTS

The MoU may be amended only by written agreement of the Parties. Amendments shall be valid only if signed by the authorised representatives of the Parties.

## ARTICLE 8. MISCELLANEA

Notwithstanding anything in this MoU to the contrary, neither Party shall have any legally binding obligation to the other Party as a result of the execution of this MoU, or otherwise relating to this MoU or the subject matter hereof. Although the Parties will try to reach one or more future agreements as to the matters described herein, this MoU shall not require the Parties to reach any future agreement, and, notwithstanding anything in this MoU to the contrary, neither Party shall have any liability to the other Party as a result of the Parties' failure to reach one or more future agreements.

Neither Party shall reassign this MoU or any of its responsibilities without the other Party's prior written consent.

The failure of either Party to enforce any term hereof shall not be deemed a waiver of any rights contained herein.

If any provision of this MoU is determined to be invalid or unenforceable under any controlling law, the invalidity or unenforceability of that provision shall not affect the validity or enforceability of the remaining provisions of this MoU.

## ARTICLE 9. LANGUAGE

The language for this MoU, its interpretation and all cooperative activities foreseen for its implementation, is English.

## ARTICLE 14. GOVERNING LAW AND DISPUTE RESOLUTION

The terms of this MoU shall be interpreted in accordance with their true meaning and effect independently of national and local law. Provided that if and insofar as this MoU does not stipulate, or any of its terms are ambiguous or unclear reference shall be made to the substantive laws of Belgium.

1. Disputes shall be resolved by amicable settlement. All disputes or differences arising in connection with this MoU which cannot be settled amicably shall be finally settled by arbitration in accordance with the procedure specified below which shall be adapted in the light of the number of Parties involved.

2. Within thirty (30) calendar days of written notification by a Party to the other Party of its intention to resort to arbitration, the first Party shall appoint an arbitrator. The second Party shall appoint an arbitrator within three (3) months of the appointment of the first arbitrator. The two arbitrators shall, by joint agreement and within ninety (90) calendar days of the appointment of the second arbitrator, appoint a third arbitrator, who shall be the Chairman of the Arbitration Committee.

3. If the second Party fails to appoint an arbitrator or the two arbitrators fail to agree on the selection of a third arbitrator, the second or, as the case may be, the third arbitrator, shall be appointed by the President of the Court of Justice of the European Communities.

4. Unless otherwise agreed by the Parties concerned within thirty (30) calendar days of the provision of notice referred to in Article 12 above, the arbitration proceedings shall take place in Brussels and shall be conducted in English. The Parties shall within one month of the appointment of the third arbitrator agree on the terms of reference of the Arbitration Committee, including the procedure to be followed.

5. The Arbitration Committee shall faithfully apply the terms of this MoU. The Arbitration Committee shall set out in the award the detailed grounds for its decision.

6. The award shall be final and binding upon the Parties, who hereby expressly agree to renounce any form of appeal or revision.

7. The costs including all reasonable fees expended by the Parties to any arbitration hereunder shall be apportioned by the Arbitration Committee between these Parties.

IN WITNESS WHEREOF, the Parties have caused their duly authorised representatives to sign two originals of this Memorandum of Understanding.

The following agree to the terms and conditions of this MoU:

#### EGI Foundation

Tiziana Ferrari Director Science Park 140 1098 XG Amsterdam The Netherlands

Date: Jul 7, 2025 | 18:38 CEST

Signature:

— Docusigned by: Dr. Tiziana Furrari —465881FE0D144C8...

#### The KM3NeT Research Infrastructure

Paul de Jong Spokesperson of the KM3NeT Collaboration Science Park 105 1098 XG Amsterdam The Netherlands

Date: Jul 8, 2025 | 22:27 CEST

Signature:



### ANNEX 1. JOINT WORK PLAN

To support the collaboration objectives defined in Article 2. Purpose and Scope, a joint work plan is defined and will be regularly reviewed and updated at least annually.

The cooperation is focused, but not limited, to the following areas:

- 1. Delivery of infrastructure services for the KM3NeT Research Infrastructure.
- 2. Scale-up the computing capacity allocation with the involvement of the EU Data Centers of the EGI Federation.
- 3. Joint support for the research community.
- 4. Federate new Data and Resources Centers supporting the KM3NeT Research Infrastructure.
- 5. Exchange information about the impact of this collaboration. Jointly organise forums, events, and activities beneficial for the execution of the Joint Work Plan outlined in this MoU.

In this broad context, the specific goals of the collaborations are as follows.

## Joint Activity 1. Delivery of infrastructure services for the KM3NeT Research Infrastructure

The EGI internal Service Portfolio<sup>1</sup> contains the services that are organised within the federation to enable EGI resource providers to operate together. EC-funded projects and EGI membership fees contribute to maintaining, evolving and operating the services in the internal service portfolio.

Hereafter, we list those that have overlapping interests and benefits for the KM3NeT Research Infrastructure:

 The EGI Helpdesk service (a.k.a. <u>GGUS</u>). The EGI Helpdesk service provides a single interface to support users and service providers in tracking incidents and service requests. The EGI Helpdesk service is interfaced with a variety of other ticketing systems at the NGI level, and with the EOSC Helpdesk in order to allow for a bi-directional exchange of tickets.

The EGI Federation is responsible for managing the overall GGUS Helpdesk system, Support Units (SUs), ticket triage, their escalation and first-and second-level support. The EGI Federation has been providing funding through projects and fees to maintain, evolve, and upgrade GGUS to introduce novel functionality in the helpdesk. GGUS is operated by <u>Karlsruhe Institute of Technology</u> (KIT) according to the terms and conditions defined in an Operational Level Agreement (OLA).

<sup>&</sup>lt;sup>1</sup> <u>https://www.egi.eu/services/federation/</u>

- Helpdesk Support Staff for first- and second-level regular ticket triage and processing, with assignments to third-level technology provider experts, sites, or service managers as needed. First- and second-level support is an EGI Core Activity, and it is funded through EGI.
- Infrastructure catalogue a.k.a. <u>Configuration Database (GOCDB)</u>. This includes information on services that are suitable for both human consumption and automatic consumption via APIs. Available information includes service endpoints, scheduled downtime, as well as staff involved in running services (system administrators and security contacts).
- Accounting Repository and Portal, a.k.a. the <u>EGI Accounting Portal</u>. The EGI Accounting Portal stores user accounting records from various services offered by EGI, such as Cloud, HTC, and storage usage. It operates thanks to message brokers that transfer usage data from the services to a central repository of information, which can then be visualised in the portal.
- Monitoring service a.k.a. (ARGO). This service supports monitoring and access to historical monitoring data for the infrastructure. Its results are overseen by EGI Operations, and unresolved issues are followed up through the Helpdesk as needed. Monitoring relies on a distributed messaging infrastructure for the exchange of monitoring probe results.
- The EGI <u>Operations Portal</u> bundles different functionalities including dashboards used by EGI Operations to help ensure that the infrastructure is in good shape. The EGI Operations Portal also includes VO management facilities, dedicated dashboards for extracting useful usage metrics, and generating service performance reports of running Service Level Agreements with customers, as well as a broadcast tool to send information targeted at different communities.

#### **Expected Results:**

- Services of the EGI Internal Catalog are configured to support the KM3NeT RI. Specifically:
  - **The EGI Helpdesk service**: Members of the EGI Federation will support the creation of the KM3NeT dedicated SUs in the new domain-agnostic helpdesk solution based on Zammad.
  - Helpdesk Support Staff: Members of the EGI Federation will provide first-level support triage for KM3NeT tickets, involving the appropriate experts and SUs.
    - First-level support is responsible for ticket triage, requesting additional information from the submitter, and assigning the ticket to second-level experts Support Unit.
    - Second-level support is in charge of monitoring issues entering the second-level issue tracker, selecting those for which they possess expertise, and initiating solutions or involving other experts.

- **The EGI Infrastructure Catalog (GOCDB)**: Members of the EGI Federation will: 1.) Ensure that the central service registry and the topology database will contain relevant information for the KM3NeT RI, such as: Operations Centres, Resource Centres, service endpoints and their downtimes, contact information, and roles of users responsible for operations at different levels, and 2.) Create a dedicated tag in the Configuration Database to group all the Resource Centres supporting the experiment.
- **The EGI Accounting Portal**: Members of the EGI Federation will ensure that accounting records generated by the KM3NeT RI are available to review its usage of EGI resources.
- **EGI Monitoring**: Members of the EGI Federation will ensure that the performance of the Resource Centres supporting the KM3NeT RI is successfully monitored, with potential issues quickly detected by adopting functional probes.
- **The EGI Operations Portal**: Members of the EGI Federation will ensure that the VO management of the KM3NeT RI, and the information published by the VOid card are up to date.

Partners involved: KM3NeT, EGI

Task duration: MoU duration.

## Joint Activity 2. Scale-up the computing capacity allocation with the involvement of the EU Resource Centers of the EGI Federation

In this Joint Activity, EGI Foundation will establish a Collaboration Agreement with the EU Resource Centers of the EGI Federation interested in supporting the KM3NeT Research Infrastructure. This Collaboration Agreement will contribute to increasing the pledged capacities, and expanding the current analysis infrastructure used by the KM3NeT Research Infrastructure to support the new phase of the collaboration.

To guarantee high quality of the computing service offered to the KM3NeT, EGI Foundation will:

- Agree to a Service Level Agreement (SLA) with the KM3NeT Research Infrastructure to specify the services to be provided for supporting KM3NeT activities and how they will be provided.
- Agree to an Operational Level Agreements (OLAs) between the EGI Foundation and the selected resource providers identified to support the KM3NeT Infrastructure.
- Monitor the services in order to measure the fulfillment of the agreed service level targets. From a technical perspective, this is done by monitoring the monthly service performance and checking whether the service targets are met.
- Run a customer satisfaction review process to assess and review the entire Service Level Agreement and identify possible improvements.

Initial EGI Resource Centers that will be contribute to the activities and objectives of this joint activity comprise:

- <u>IN2P3-CC</u>, Lyon, France
- IN2P3-CPPM, Centre de Physique des Particules de Marseille, France
- INFN-T1, Bologna, Italy
- NCBJ-CIS, National Centre for Nuclear Research, Otwock, Poland
- <u>NIKHEF-ELPROD</u>, Amsterdam, The Netherlands
- <u>SARA-MATRIX</u>, SURFsara, Amsterdam, The Netherlands

#### **Expected Results:**

• Service and Operational Level Agreements are in place to support the KM3NeT Research Infrastructure.

**Partners involved**: EGI, IN2P3-CC, IN2P3-CPPM, INFN-T1, NCBJ-CSI, NIKHEF-ELPROD, and SARA-MATRIX.

Task duration: MoU duration.

#### Joint Activity 3. Jointly support research communities

Both Parties will identify research groups and communities that can be potential users of the EGI – KM3NeT joint collaboration, and will coordinate outreach, engagement, training, and service delivery for these communities.

#### **Expected Results:**

• New scientific use cases and piloting activities are identified as part of this collaboration.

Partners involved: EGI, KM3NeT Research Infrastructure

Task duration: MoU duration.

#### Joint Activity 4. Federate new Data and Resource Centers in EGI

As part of this joint activity, both Parties actively contribute to registering new Data and Resource Centers willing to contribute to the KM3NeT Collaboration within the EGI Federated Infrastructure. This will enhance scientific research, particularly in areas such as High-Energy Physics, data-intensive computing, and distributed research infrastructure.

#### **Expected Results:**

 Interested new Data and Resource Centers will follow the <u>PROCO9</u> procedure to describe the steps for registering and certifying new Resource Centers (sites) in the EGI Federated Infrastructure.

Partners involved: EGI, new resource providers of KM3NeT Research Infrastructure

Task duration: MoU duration.

#### Joint Activity 5. Impact, dissemination, outreach

The objective of this activity is to maximize the impact of both EGI and KM3NeT RI through the efficient coordination of dissemination. This will require setting up contact points for communication channels, publications, success stories, articles and events.

In the context of this Joint Activity, both Parties will share success stories, will create collaborative articles, publications, presentations, and demonstrations, which they will showcase/distribute at significant events, in addition to using EGI and KM3NeT RI channels.

Both Parties will participate in each other's events, including workshops and annual conferences, when beneficial to further the activities outlined in this document.

#### **Expected results**:

- Launch: Advertise the start of the collaboration in each Party's website with a dedicated static page, article and press releases (within 1 month); Setting-up the official communication channels.
- **Reporting**: KM3NeT RI will be invited to contribute to EGI's promotional materials and publications to reflect the collaboration between the two Parties;
- **Events**: Joint sessions at EGI and KM3NeT events will be planned in order to disseminate the progress and results of the collaboration.

**Expected results**: Participate in joint events and dissemination activities.

Partners involved: EGI, KM3NeT Research Infrastructure

Task duration: MoU duration.