

# OpenAIRE-NEXUS - TRIPLE Memorandum of Understanding

## Preamble

Whereas, OpenAIRE-Nexus aims to establish an open and sustainable scholarly communication infrastructure responsible for the overall management, analysis, manipulation, provision, monitoring and cross-linking of all research outcomes. The OpenAIRE Research Graph is one of the largest open scholarly record collections worldwide, key in fostering Open Science and establishing its practices in the daily research activities. Conceived as a public and transparent good, populated out of data sources trusted by scientists, the Graph aims at bringing discovery, monitoring, and assessment of science back in the hands of the scientific community.

Whereas, the TRIPLE project develops a discovery platform to enable researchers to discover and reuse SSH research data and publications, but also researcher profiles and projects across disciplinary and language boundaries. It provides all the necessary means to build interdisciplinary projects and to develop large-scale scientific missions. It will thus increase the economic and societal impact of SSH resources. To conclude, TRIPLE will help SSH research in Europe to gain visibility, to be more efficient and effective and to improve its reuse within SSH and beyond.

## Parties

This Memorandum of Understanding (MOU), hereinafter referred to as the Memorandum, entered into the following Agreement, by and between:

- OpenAIRE-Nexus composed by a consortium of 11 partners and represented by Ioannis Ioannidis, the project coordinator of OpenAIRE Nexus consortium, via OpenAIRE A.M.K.E, located at Artemidos 6 & Epidavrou, 15125, Marousi, Greece, VAT number: EL997032008, hereinafter referred to as the "First Party,"

and



The OpenAIRE-Nexus project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 101017452.

The TRIPLE project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 863420.

- TRIPLE composed by a consortium of 21 partners and represented by Suzanne Dumouchel, the scientific coordinator of the TRIPLE project, hereinafter referred to as the "Second Party". The MoU only engages the partners of the consortium during the lifetime of the TRIPLE project.

and collectively known as the "Parties" for the purpose of establishing and achieving various goals and objectives relating to this MoU.

## Relevant Projects

**OpenAIRE Nexus project** Grant agreement number: 101017452

- INFRAEOSC-03 and INFRAEOSC-04 projects for delivering targeted training on Open Science.
- INFRAEOSC-07, to foster interoperability and FAIR principles within EOSC
- EOSC-FUTURE, to integrate, consolidate, and connect e-infrastructures, research communities, and initiatives in Open Science to further develop the EOSC Portal, EOSC-Core and EOSC-Exchange of the European Open Science Cloud (EOSC).

**TRIPLE project** Grant agreement number 863420

- INFRAEOSC-02-2019, Prototyping new innovative services

## Collaboration Goals

OpenAIRE and TRIPLE teams will collaborate to identify research products of the OpenAIRE Research Graph that are to be included in the GoTriple platform.

OpenAIRE will offer a CONNECT gateway with an administration panel to configure the identification criteria and an end-user web GUI to view the selected research products, whose metadata records will be made openly available via the OpenAIRE API and via Zenodo as a dump in json format.

TRIPLE will be responsible for the configuration of the CONNECT gateway and for the implementation of the client to feed the GoTriple platform with the identified research products.



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## Collaboration Activities - Parties Obligations

Achieving our collaborative goals are specified in the following strands of activities:

- OpenAIRE CONNECT Gateway
  - OpenAIRE will deliver a community gateway
  - OpenAIRE will keep the gateway updated frequently based on the OpenAIRE Research Graph update schedule.
  - TRIPLE will configure the gateway according to the GoTriple brand and verify it is properly configured to include the metadata records of interest
- Feeding data into the GoTriple platform
  - OpenAIRE will provide a new version of the metadata dump on Zenodo at least every 2 months. Every 6 months, the dump will also be openly published on Zenodo as part of the dataset “OpenAIRE Research Graph: Dumps for research communities and initiatives” available at <https://doi.org/10.5281/zenodo.3974604>
  - TRIPLE will implement the client to feed the GoTriple platform with the support of the OpenAIRE team
  - The GoTriple platform will include an acknowledgement statement to the OpenAIRE Research Graph
- Other OpenAIRE services: TRIPLE will investigate the needs of its consortium and users of the GoTriple platform and identify other OpenAIRE services/products to be adopted (e.g. definition of a domain-specific template for Data Management Plans with Argos). The list of available OpenAIRE services/products is available in the Appendix of this MoU.

## Timeline

Phase 1 (Nov. 2021)

- OpenAIRE: delivery of the community gateway
- TRIPLE: configuration of the gateway

Phase 2 (Dec. 2021- March 2023)

- OpenAIRE: delivery of the metadata dumps in json format
- TRIPLE: implementation of the consumption of the metadata dump and its integration in the GoTriple platform

The OpenAIRE-Nexus services provided to TRIPLE in the context of this agreement will remain available until June 2023 (end of OpenAIRE-Nexus project), despite an early ending of the TRIPLE project (March 2023).



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## Financial implications

The present MoU implies no financial commitment by either Party. Activities to be implemented under this MoU are subject to the availability of staff and financial resources. The Parties may enter into separate agreements for matters which may involve the commitment of funding or other resources.

## Use of Names and Logos

The Parties agree not to use in any press release, memo, report, or other published disclosure related to this MoU the other Party's name, acronym, emblem, or logo without the prior written consent (e.g. via email) of the Party concerned. In no event shall the authorization of either Party's name, acronym, emblem or logo be granted for commercial purposes.

## Privileges and Immunities

Nothing in this MoU or in any document or arrangement relating thereto, shall be construed as constituting a waiver, express or implied, of the privileges and immunities of either Party, nor as extending any privileges or immunities of either Party to the other Party or to its personnel.

## Intellectual property rights

Intellectual property rights, in particular copyright, in any material made available by either Party to be used to carry out activities under this MoU shall remain with the originating Party. Copyright of materials and reports, as well as rights to any other intellectual property, developed jointly by the Parties will be shared by the Parties. The Parties will enjoy perpetual, royalty-free, non-exclusive and non-transferable licenses to use such materials for non-commercial purposes. All jointly-produced materials produced under this MoU shall be subject to separate co-publishing agreements to govern intellectual property rights and responsibilities over such material on a case-by-case basis.

## Foreground

The Parties agree that the exploitation of specific results of study and research generated as foreground of this MoU, may be subject to specific regulation, in accordance with their respective institutional purposes.

## Communication and Dissemination

Both parties will commit to communicating the successful outcomes via respective communication channels and both will approve any public statements and outcomes. For example: a web page / blog post, reports on the use cases, sharing logos, icons, badges and



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web-embeddings, presentations at conferences, and a newsletter where we share the experience of working together and the results.

## **Confidentiality**

Neither of the Parties nor its personnel will communicate to any other person or entity any confidential information made known to it by the other Party in the course of the implementation of this MoU nor shall it use this information to private or company advantage. This provision will survive the expiration or termination of this MoU.

## **Publication**

Prior notice of any planned scientific, research or educational publication will be given to the other Party at least 20 days before the publication. For all other types of publication, e.g. blog posts, publications for communication purposes, the aforementioned prior notice should be given at least 2 days before the publication. Any objection to the planned publication shall be made within 10 days after receipt of the notice. If no objection is made within the time limit stated above, the publication is permitted.

## **Entry into Force and Duration**

This MoU shall be signed by the Parties and will enter into force on the date of the second signature and remain in force until the end of the TRIPLE project (March 2023). Subject to satisfactory past implementation, this MoU may be renewed by mutual written agreement of the Parties.

## **Amendments**

This MoU may be modified by written mutual consent of the Parties, in accordance with their respective rules. Such amendments will enter into force one month following notifications of consent by both Parties.

## **Notice**

Any notice or communication required or permitted under this Memorandum shall be sufficiently given if delivered in person or by certified mail, return receipt requested, to the address set forth in the opening paragraph or to such address as one may have furnished to the other in writing.

## **Governing Law**

This Memorandum of Understanding shall be governed by and construed in accordance with the laws of the EU.



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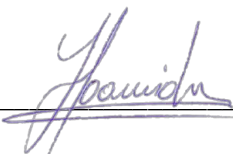
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## Authorization and Execution

The signing of this Memorandum of Understanding does not constitute a formal undertaking, and as such it simply intends that the signatories shall strive to reach, to the best of their abilities, the goals and objectives stated in this MOU.

This Agreement shall be signed by Ioannis Ioannidis and Suzanne Dumouchel and shall be effective as of the date first written above.

Ioannis Ioannidis



5/4/2022

(First Party Signature - OpenAIRE)

(Date)

Suzanne Dumouchel



4/21/2022

(Second Party Signature - TRIPLE)

(Date)



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## Appendix:

For dissemination purposes, the spectrum of OpenAIRE-Nexus services and some OpenAIRE - European Funded tools are presented in this section, to inform the Second Party on further future collaborations that may arise.

### OpenAIRE Nexus services in a nutshell

Details: <https://www.openaire.eu/openaire-nexus-project>

#### Graph

OpenAIRE Research Graph - an open resource that aggregates a collection of research data properties (metadata, links) available within the OpenAIRE Open Science infrastructure for funders, organizations, researchers, research communities and publishers to interlink information by using a semantic graph database approach. Read more [here](#)

#### PUBLISH

Zenodo - a catch-all repository hosted by CERN, which researchers, communities or Research Performing Organizations, and citizens can use for FAIR sharing and long-term preserving research results

EpiSciences - a pan-European overlay journal platform, operating on top of OA repositories (e.g. HAL, Zenodo, arXiv), where communities can create and operate high-quality OA journals

Amnesia - a service to anonymize sensitive research data (GDPR compliant), ready to be embedded in institutional workflows, to remove barriers and facilitate FAIRness of data

ARGOS - a service for machine-actionable Data Management Plans, guiding researchers towards FAIR, configurable to domain discipline knowledge



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## MONITOR

**MONITOR Dashboard** - customized portals as-a-service to funders, institutions and RIs detailing research throughput, output, collaboration and impact, open science uptake. Based on the OpenAIRE Research Graph, a semi-automatically curated catalogue to serve the EOSC and the global research community, which includes all types of scholarly records (publications, data, software, other research artefacts), interlinked via citations, and maintaining provenance information about all actors involved in the research process (researchers, organizations, funders, service providers)

**OpenCitations** - an open database that tracks article-article citations

**ScholExplorer** - an open database that tracks article-dataset and dataset-dataset citations

**UsageCounts** - an open analytics service aggregating and de-duplicating publications DOI usage data

**OpenAPC** - article and book publishing costs (APC and BPC) from research institutions and funders. Read more [here](#)

**Open Science Observatory** - a dashboard that includes statistics and monitoring information on open science in Europe, with country views

**OpenAIRE AAI** - Enables Service Providers to deliver services and offer access to resources to research communities and individual researchers, allowing users to use their institutional and community-enabled digital identities.

## DISCOVER

**PROVIDE Dashboard** - a bundle of services for content providers to share and exchange metadata and content using EOSC metadata frameworks and Rules of Participation. The service provides metadata validation, reporting and brokering functionalities, providing feedback about gaps between EOSC data sources, maintaining an up-to-date scholarly record

**EXPLORE Dashboard** - an AI-driven research search engine allowing cross-disciplinary and scientific discovery, additionally providing access to the OpenAIRE Research Graph via open APIs

**CONNECT Dashboard** - customized portals/gateways as-a-service to research communities (domain specific or regional) with open science



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practices embedded by design

## Supportive OpenAIRE-European Commission funded tools

Along with the OpenAIRE-Nexus services described above, OpenAIRE offers a variety of solutions that can assist in the discovery and awareness of Open Science and scholarly works for researchers, universities and citizens. Some examples are:

**Open Science Lens:** is a Open Science in a click tool, that works as a Google Chrome Add-on, that users install on their Chrome browser and they can easily view publications available on a webpage they visit!

The tool is available on Google Chrome Store: <https://chrome.google.com/webstore/detail/open-science-lens/alpdaolafiaddpgkifbompaopnkmmfla>

More details are available here: <https://www.openaire.eu/open-science-in-a-click-through-the-openaire-open-science-lens>

**Ingredio:** is a mobile app available on Google Play, that enables users to scan the ingredients of a cosmetics or food product and view whether they are safe or toxic/allergenic or of natural origin. The app exploits the OpenAIRE research graph by means of the open data in the OPENAIRE Research graph to find correlations between the chemical ingredients found in food and cosmetics with allergies, toxicity, irritation and allergies in order to inform consumers about potential hazards that these chemical ingredients pose to their health. Text mining algorithms are used that support the outcomes of the app. The app is available for download from [Google Play](#) and [Apple Store](#)

More details are available here:

<https://www.openaire.eu/openaire-research-graph-for-consumer-health>

**Opscidia Ontology Generator:** based on OpenAIRE-Research Graph, the tool provides a clear view of the ontologies that are generated when a user queries a keyword on OpenAIRE-Research Graph.

The tool is available here: <https://openaire.opscidia.com/>

More details are available here: <https://www.openaire.eu/opscidia-ontology-generator>

## Second Party Services or other relevant activities

The following five specific tools - from now on “Innovative Services”- have been integrated in the GoTriple platform:

**A Recommender system (ScaR)**

**The Trust Building System (MEOH App)**

**Visualization components**

**An Open Web Annotation tool (Pundit)**

**The Discovery system (Head Start)**

### Recommender System

ScaR is a Recommender System: its acronym stands for Scalable Recommendation-as-a-service. It offers a modularly built and very flexible recommendation service component.

In line with the requirements identified through user research and the characteristics of the available data, ScaR has been adapted and extended to fit the needs and expectations of TRIPLE's prospective users.

More details are available here : <http://scar.know-center.tugraz.at>



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## Trust Building System

The TBS aims to develop new channels of online cooperation for the SSH community, more suitable for transversal collaborations. The TBS service for TRIPLE has not been developed from scratch, but it consists of the adaptation of an existing mobile App developed by project partner MEOH.

TBS core functionalities include:

- User and group profile management
- The ability to create and participate in private networks
- Newsfeed channels to publish posts and specific requests.

TRIPLE partners have expanded MEOH's App in order to:

- Adapt the current TBS from mobile to desktop environment
- Integrate the TBS with the GoTriple platform

More details are available here : <https://www.meoh.io>

## Visualization components

Done by project partner OKMaps, the components consist of two types of visualizations: (1) a set of reusable diagram types that has been exploited in various parts of the GoTriple user interface, such as in the search results pages, and (2) two complex, interactive visualizations, i.e knowledge map and streamgraph, which are part of the Discovery System service (see below).

This diagram service takes data as input and produces a specific web-based diagram representing that data. The diagram types have been determined in a collaborative process with the TRIPLE consortium and prospective users in co-design tasks. Then, they have been implemented using the following process :

1. Identify suitable open source libraries for reuse in the project (Recharts and React Simple Maps)
2. Select the most relevant for the diagram types determined in TRIPLE
3. Adapt for use in TRIPLE

More details are available here : <https://openknowledgemaps.org/index.php>

## Open Web Annotation tool

Pundit (<https://thepund.it/>) is a web annotation service powered by Semantic Technologies.

Users can exploit to add “digital marginalia” on web pages, in particular those “discovered” through GoTriple. A new version of Pundit has been recently publicly released, maintaining existing functionalities (highlighting, commenting, semantic annotations) and enhancing the User Experience with updated design and workflows.

## Visual Discovery system

This tool is realised with Head Start, a web-based framework for knowledge mapping by project partner OKMaps. Head Start brings together textual and visual interface components to provide overview and insight into research outputs. The current architecture of Head Start consists of two main components. The main components are a server instance and a browser-based client. The server component interfaces with data sources, computes knowledge map representations and stores and retrieves map representations and associated metadata. The client component takes a map representation and enables users to interactively explore the map.

There are two main visualization types: (1) knowledge map, providing a clustered overview of resources, and (2) streamgraph, providing a chronological overview of resources. Client and server are connected through the search-flow, a modular, customizable package that models all steps of the user's workflow.

In the course of TRIPLE a series of updates to Head Start have been performed, including:

- significant improvements on the software architecture of the service



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- implementation of a large-scale refactoring of the backend
  - adaptation of the machine learning pipeline to support multilingual SSH data.
- More details are available here : <https://openknowledgemaps.org/about>



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