Triple

Transforming Research through Innovative Practices for Linked Interdisciplinary Exploration

Advancing Open Scholarship

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D6.2 – REPORT ON PROCEDURE TO FOLLOW TO BE PART OF THE EOSC CATALOGUE

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DRAFT

Acronyms

EOSC	European Open Science Cloud
OPERAS	Infrastructure to support open scholarly communication in the european research area for social sciences and humanities
RI	Research Infrastructure
ScaR	Scalable recommendation as-a-service
SSH	Social Sciences and Humanities
SSHOC	Social Sciences and Humanities Open Cloud
STEM	Science Technology, Engineering, Mathematics

Publishable Summary

The 6.2 Deliverable presents the procedure to onboard the future GoTriple platform into the EOSC catalogue. This deliverable is supposed to guide the TRIPLE consortium in the purpose of adding a SSH discovery platform to the EOSC catalogue but it can also guide other service providers for their own purposes, especially services that are made with different components.

Part 1 of this deliverable provides an overview of the GoTriple platform and the five innovative services that are integrated into it, e.g. ScaR, MEOH App, Visualisation components, Pundit, and Head Start. As those innovative services are independent tools, the perspectives, challenges and potential solutions of their onboarding into the EOSC catalogue are discussed in detail on a case-by-case basis.

Part 2 contains the core information of this deliverable. First, an overview of the three main steps in the onboarding process (2.1.) provides the overall context of the task. Second, the timeline of all needed steps (already taken and planned closer to the end of the project) to define the final federation that will serve as GoTriple provider is outlined (2.2). Essentially, all project partners that are committed to continue their support of the developed service after the project will be identified as GoTriple providers in the EOSC portal, while the GoTriple discovery service will be part of the OPERAS Research Infrastructure's catalogue. Third, the details of the resource profile that are mandatory and optional, are listed according to the set of fields in the EOSC portal.

Part 3 summarises the two main steps in the roadmap for integration which are planned to take place in September 2021 and March 2023.

In conclusion, the authors highlight the fact that the EOSC development is an ongoing process, and therefore, the current report reflects the procedures and planning steps that are valid at this point of time and fit the current requirements.

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INTRODUCTION: GOTRIPLE AND THE EOSC

EOSC - big acronym with a bold vision

Realising former Commissioner Carlos Moedas's <u>bold vision</u> to enable all European researchers to deposit, access and analyse scholarly resources beyond borders and disciplines, the EOSC has become a central component of European science policy, and, since its <u>launch</u> in October 2018, it is becoming a reality as an infrastructure, too. Aiming to turn research in all disciplines digital, connectible and "<u>open by default</u>" across Europe, the European Open Science Cloud is envisioned to connect 1.7 million European researchers and 70 million professionals in science and scholarship with each other as well as with a loosely federated research data and infrastructure landscape.[1]

Why is a strong representation of SSH data services a crucial success criterion of the EOSC?

Clearly, Open Science and its infrastructural components will only be truly open if they enable open research and data workflows in all disciplines and scholarly domains, not only in the STEM[2] fields that traditionally have a stronger impact on the development of Open Science than the SSH domain.[3] Integrating flagship domain-specific data services to the EOSC service portfolio is a crucial step towards making a broad disciplinary inclusion a reality in EOSC.

The GoTriple platform is among the very few European discovery services designed with the specific needs and epistemic traditions of SSH disciplines in mind. By including GoTriple on the EOSC, the European SSH communities at large can discover and reuse SSH resources across disciplinary and language boundaries. The GoTriple platform is envisioned to play a crucial role in breaking down the silos that currently challenge multidisciplinary research both within and across the SSH domain. It brings together digital scholarly objects of all kinds from a wide range of databases, data repositories, publishing and aggregation services to promote findability and reduce fragmentation within SSH. This is a crucial step towards "<u>bringing the long tail of Social Sciences and Humanities into Open Science</u>", addressed by Elena Giglia in a paper from 2019 on the OPERAS infrastructure in the Italian *Journal of Library, Archives and Information Science*. Furthermore, GoTriple enables interoperability with the larger Open Science and technical

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[1] https://eudat.eu/european-open-science-cloud
[2] Science Technology, Engineering, Mathematics disciplines, also known as the hard sciences.
[3] For a more comprehensive discourse on the dominant impact of STEM on Open Science, see Knöchelmann, M. Open Science in the Humanities, or: Open Humanities? *Publications* **2019**, *7*, 65. https://doi.org/10.3390/publications7040065 .

framework of the EOSC, thereby connecting the SSH data landscape with the European scholarly data commons as well as the larger Open Science frameworks and infrastructures.

How might the GoTriple service benefit from the EOSC integration?

The EOSC forms a central component of the European Commission's science policy, science funding and Open Science roadmap in the long term.[4] As such, it is very likely that the EOSC will define what kinds of research and research infrastructures will become primarily visible on the EU horizon. Putting resources and services of the Social Sciences and Humanities research infrastructures on the radar of EOSC and showcasing the richness and value is therefore an absolute priority.

In this vein, adding the GoTriple service to the EOSC catalogue equals making the service visible and recognized "on the EU map" of the Research Infrastructures which collaborate together to develop this service. It is also a strong added value considering the fact that the discovery platform will be used beyond the immediate communities served by each individual partner. This not only supports the service to meet and broaden its intended user-base (i.e SSH scholars across Europe) but also comes with a recognition of the maturity of the service.

Further, achieving interoperability with the larger Open Science and technical framework of the EOSC is key to connecting the GoTriple service with bigger, discipline-agnostic scholarly information management systems, such as OpenAIRE Explore and other bibliometric databases that are used or will be used for discovery or for assessment of scholars' work.

EOSC - not a monolithic entity (but an umbrella term covering a complex, multilayered landscape)

Even though EOSC is a single term, and as such, it might come with a perception of homogeneity, in reality EOSC is an umbrella term, used to indicate different things, infrastructural underpinnings, and actors by different communities.

Uncovering the full EOSC landscape in its complexity surely cannot be the aim of the present deliverable. Therefore, this paragraph only briefly highlights the key social and technical structures of the EOSC that must be taken into account for the integration of the GoTriple service. This deliverable focuses on the current state of decision about which services to be integrated and it defines the onboarding process of the GoTriple platform and services to the EOSC.

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[4] https://eosc-portal.eu/news/european-commission-enters-partnership-eosc-association

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Key social components:

EOSC Association: the governance and administrative body of EOSC, a legal entity involved in the European Commission to coordinate and manage the EOSC implementation. (A full definition can be found in the 'Glossary' subchapter.)

EOSC Partnership: a Memorandum of Understanding between the European Commission and the EOSC Association to ensure a coordinated approach towards investments and initiatives in the EOSC ecosystem until at least the end of 2030 . (A full definition can be found in the 'Glossary' subchapter.)

Key infrastructural components:

EOSC Portal also known as: EOSC Portal Catalogue and Marketplace: the 'landing page' of the EOSC where resources of the EOSC Portal Catalogue (services, data sets etc.) are presented and can be browsed along disciplines, geographical regions etc. (A full definition can be found in the 'Glossary' subchapter.)

EOSC-Core: the EOSC-Core is the set of generic, discipline-agnostic services required to operate the EOSC. (A full definition can be found in the 'Glossary' subchapter.)

EOSC-Exchange: the EOSC-Exchange layer of services brings together thematic or, in other words, disciplinary oriented resources to serve the needs of research communities. (A full definition can be found in the 'Glossary' subchapter.)

EOSC Projects: Research infrastructure development projects that provide direct contributions to the EOSC and are funded by H2020 or Horizon Europe funding schemes. TRIPLE is one of them. (A full definition can be found in the 'Glossary' subchapter.)

A more comprehensive introduction to the EOSC landscape can be found at TRIPLE Open Science Training Series: EOSC - State of the Art and Perspectives (29 June 2021)[5].

The authors of the present deliverable are aware that the richness of EOSC-related terms and entities might be alienating and might carry the risk of serious conceptual and language barriers while searching for possibilities to connect to the EOSC. The authors of this deliverable make serious efforts to reduce this risk by explaining terms and entities in the context of the

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[5] Link to the video: https://www.youtube.com/watch?v=unM72WN4X8g

development and onboarding of the GoTriple service in a Glossary subchapter of the present deliverable. For any other terms possibly and unintentionally left unexplained, please consult the EOSC Glossary: https://eosc-portal.eu/glossary.

Positioning GoTriple on the emerging SSH landscape around the EOSC

Speaking of EOSC projects and EOSC science clusters, it is important to highlight that naturally the GoTriple service is not a stand-alone SSH contribution to the EOSC but is well-embedded in an emerging SSH cluster. As such, the GoTriple platform will also serve hand in hand with the SSH Open Marketplace, a resource to search for and find a wealth of research tools relevant for the SSH area. The SSH Open Marketplace has been developed within the H2020 project SSHOC that constitutes the SSH science cluster of the EOSC. Due to their complementarity the GoTriple discovery platform and the SSHOC Marketplace will leverage maximum synergy: GoTriple comes with the primary focus of data discovery as well as finding and building connections between researchers and projects across disciplinary and language boundaries, while the SSHOC Marketplace puts more emphasis on research tools and workflows. Both of them will improve the use of the other tool to set up a complementary workflow for SSH researchers.

GLOSSARY

EOSC-Core: the EOSC-Core is the set of generic services (such as the Authentication and Authorization Infrastructure (AAI)) required to operate the EOSC. (Check the EOSC Glossary for an official definition.)

EOSC-Exchange: the EOSC-Exchange layer of services brings together thematic resources provided by Research Infrastructures and science (or thematic) clusters[6] (such as SSHOC) to serve the needs of research communities. Since research is still organized along disciplinary or thematic lines, even in transdisciplinary settings, these thematic services are the primary guarantors of community uptake of the EOSC. GoTriple is also expected to populate EOSC Exchange upon onboarding. (Check the EOSC Glossary for an official definition.)

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[6]For more information about the crucial role of science clusters in populating the EOSC, see: Giovanni Lamanna, Ian Bird, Andreas Petzold, Ari Asmi, Magdalena Brus, Niklas Blomberg, … Ron Dekker. (2021, June 1). ESFRI Science Clusters Position Statement on Expectations and Long-Term Commitment in Open Science (Version 1.02). Zenodo. http://doi.org/10.5281/zenodo.4892245

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EOSC Portal: the 'landing page' of the EOSC. "The <u>EOSC Portal</u> is part of the EOSC implementation roadmap as one of the expected "federating core" services contributing to the implementation of the "Access and interface" action line. It has been conceived to provide a European delivery channel connecting the demand-side and the supply-side of the EOSC and all its stakeholders." (Source: https://eosc-portal.eu/about-eosc-portal)

EOSC Portal Catalogue (also known as EOSC Catalogue) and Marketplace (key constituents of the EOSC Portal): Integrated platform that allows easy access to lots of resources for various research domains along with integrated data analytics tools. Source: https://marketplace.eosc-portal.eu/ As a result of the EOSC onboarding, the GoTriple service will become listed in the EOSC Portal Catalogue and will become findable through the EOSC Marketplace.

EOSC Hub: EOSC-hub is a project concluded in December 2020. It had been funded by the European Union's Horizon 2020 research and innovation programme under grant agreement 777536. It brought together multiple service providers to create the Hub: a single contact point for European researchers and innovators to discover, access, use and reuse a broad spectrum of resources for advanced data-driven research. Work done in the EOSC Hub has been among the primary preparatory steps towards launching the EOSC Portal later. Source and more information: https://www.eosc-hub.eu.

EOSC Enhance: EOSC Enhance is a 24-month project funded by the European Commission. During the lifetime of EOSC Enhance, project partners develop and improve the functionality of the EOSC Portal, further augmenting the catalogue of services assembled to date, and connecting independent, thematic data clouds for the benefit of users and service providers across Europe. Grant Agreement number is 871160. Currently, the EOSC Portal is in part operated by EOSC Enhance. Source and further information: https://eosc-portal.eu/enhance.

EOSC Future: EOSC Future is an EU-funded H2020 project that is implementing the EOSC. The platform will also seamlessly integrate existing data and services from science communities, research infrastructures and e-infrastructures. Grant agreement number is 101017536. Source and further information: https://eoscfuture.eu/.

EOSC provider profile: The EOSC Provider Portal contains information about resource providers (also known as: E*OSC Providers* can be: *Resource Providers*, *Service Providers*, *Data (Source) Providers*, *Service Developers*, *Research Infrastructures, Distributed Research Infrastructures, Resource Aggregators, Thematic Clouds, Regional Clouds*, etc.) who wish to integrate their

resources with the EOSC Catalogue. Source and more information: https://eosc-portal.eu/providers-documentation/eosc-provider-portal-basic-guide https://eosc-portal.eu/providers-documentation/eosc-provider-portal-resource-profile

EOSC resource profile: A Resource Profile describes the information requested in order to get GoTriple service onboarded into the EOSC portal. It consists of several information blocks with mandatory and optional fields. For more information: see below discussed under Chapter 2.3.

EOSC Partnership: a Memorandum of Understanding between the European Commission and the EOSC Association signed in June 2021 to ensure until at least the end 2030 a coordinated approach towards investments and initiatives in the EOSC ecosystem. It will also help ensure directionality and complementary commitments and contributions at all levels. The Partnership between the newly formed EOSC Association and the European Commission has invited representatives of the Member States and Associated Countries (MS/AC) in its governance.
Source and more information:

https://eosc.eu/news/towards-european-open-science-cloud-revolutionising-research-digital-age

GoTriple: The flagship output of the TRIPLE project is the GoTriple platform, an innovative multilingual and multicultural discovery solution for the social sciences and humanities. It will be one of the dedicated services of OPERAS, the Research Infrastructure supporting open scholarly communication in the social sciences and humanities (SSH) in the European Research Area. A first prototype of GoTriple (beta version) is planned to be released in autumn 2021. It will be accessible via the link http://gotriple.eu/. This GoTriple platform is the primary subject of the EOSC integration procedures discussed in this deliverable.

PART 1 COMPONENTS OF THE GOTRIPLE PLATFORM:

As described in Deliverable 4.1, the GoTriple platform architecture is quite complex and comprises several layers in order to integrate the different elements, as shown in the diagram that follows.
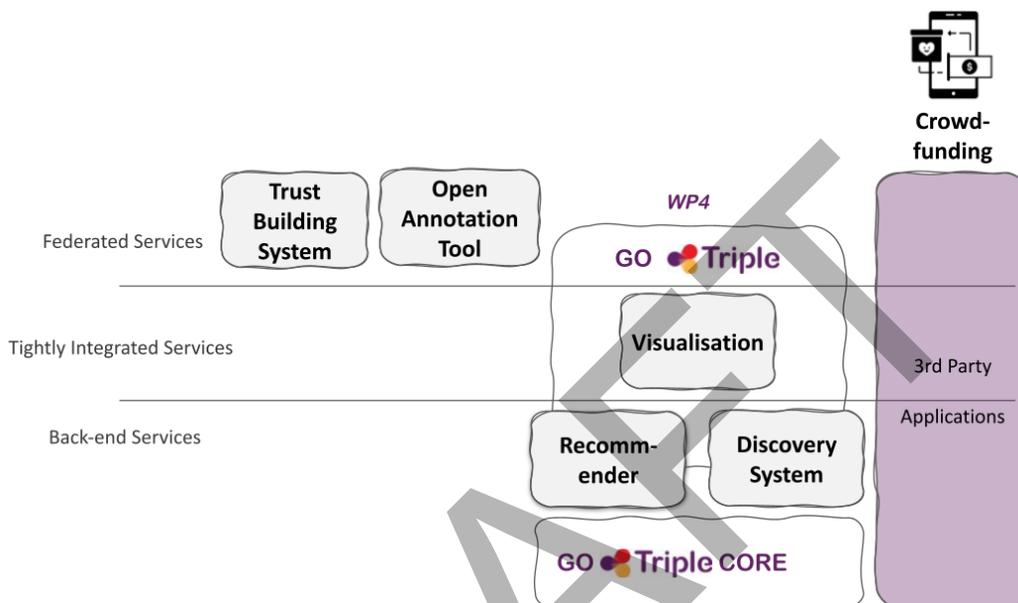

Fig.1 TRIPLE architecture

GoTriple Core refers to the data harvesting technology, which includes enrichment and indexation processes. Its purpose is to automatically retrieve and process "meaningful" content from different web sources, regarding publications, projects and profiles related to the SSH domain.

Different core APIs have been created to open TRIPLE data for those who are interested and at least for TRIPLE partners, in order to build the User Interface and to connect with the Innovative services.

Innovative services have been integrated according to different strategies, as shown in the diagram above, depending on the nature of the service. Some need to be strongly integrated (back-end services and the visualisation tool for instance) and some others can be more loosely integrated to GoTriple, by using federation strategies.

TRIPLE's Innovative Services

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)

These tools are designed and developed to be *stand-alone.* The innovative tools are not part of the GoTriple core services, but are complementing them to empower user workflows.

The above listed additional innovative services are developed by different technical partners and have to be seen as independent tools, therefore the integration plan to be part of the EOSC catalogue has to be foreseen for the GoTriple platform "per se", and individually, for each service.

Also, a specific task in the project has been devoted to the integration of third party Applications with GoTriple, for example the future Crowdfunding platform. As these tools are not developed within the TRIPLE project, they will not be described here, since the project consortium cannot decide about their possible inclusion in the EOSC Catalogue.

In the section below, a more detailed overview of the different services developed in TRIPLE follows:

Recommender System

ScaR is an existing Recommender System, developed by Know-Center, that has been integrated into TRIPLE : its acronym stands for Scalable Recommendation-as-a-service. What ScaR offers, in a nutshell, is 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. In particular, in the course of T5.2, the team has:

- collected, modelled and exploited user and context data from multiple sources such as
  - System interaction data
  - User management
- explored and integrated intelligent and innovative recommendation services that suggest
  - Scientific literature
  - Research peers and project partners

o   Research data

In future the possibility to exploit more user information will also be evaluated (e.g. data from the Trust Building System, from external services providers - e.g. the Crowdfunding tool - and possibly from Social Networks).

In the following months, the team at work on the Recommender System also aims to perform research on biases and fairness of recommendation algorithms, for studying if specific user groups (e.g., research peers) are discriminated against by algorithms and to develop concepts and methods to overcome such unfairness.

Trust Building System

TRIPLE's Trust Building System (TBS) has the aim 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.

Through T.5.3, 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
● Translate the outputs of workshops run in Task 3.3 (Trust Recommendation System User Design) as additional services of the TBS.

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

Open Web Annotation tool

The Open Web Annotation Tool that has been integrated in TRIPLE is Pundit (https://thepund.it/), a web annotation service powered by Semantic Technologies.

Pundit is a tool that users can exploit to add "digital marginalia" on web pages, in particular those "discovered" through GoTriple.

The main goals for Pundit in TRIPLE are:

● refactoring the Pundit implementation, since the previous version used obsolete technologies. Moreover, the whole annotation experience has been redefined, maintaining the original main "marginalia" functionalities (highlighting, commenting, semantic annotations) but enahancing the User Experience with updated design and workflows
● implementing the integration with GoTriple and with the TRIPLE ecosystem "at large", in particular by supporting the user registration and authentication through the EGI AAI Check-In service
● adding new functionalities, including the support of PDF documents and the interoperability with other web annotation tools.

At present the first two points have been completely addressed by the new version of Pundit, which has been publicly released. In the following months, the Pundit team will focus on the development of new functionalities, which can be also suggested by the user requirement analysis work of WP3.

Visual Discovery system

The Visual Discovery system for TRIPLE 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
- implementation of a large-scale refactoring of the backend
- adaptation of the machine learning pipeline to support multilingual SSH data.

PART 2 GOTRIPLE ONBOARDING

2.1 Procedures

Onboarding Preparation

Preparation is key in onboarding services or resources to the EOSC portal. Adequate preparation may avoid unnecessary delays in onboarding services to the EOSC portal. The following are some of the actions to take into consideration during onboarding preparation:

- **Identify Resource Organisation or/and Resource Provide**r: Resource Organisation is the main contact for the GOTriple service. It is also one that coordinates the delivery of the service in a federated use case. A Resource Provider is one that manages and delivers the GOTriple either in parts or full. Both the Resource Organisation and Provider must be onboarded on the EOSC and added to the EOSC provider's database.
- **Ensure Commitment**: The GoTriple provider(s) should ensure that the following are met:
  - Ensure that the service´s life cycle is maintained
  - Provides helpdesk support to the service end-users
  - Provides future work plan or roadmap
  - Ensure the technology is up-to-date and service is available for users
  - Provides adequate documentation for both end-users and developers
- **Understanding EOSC Profiles Questions**: EOSC metadata specifications for interoperability are in the form of Providers Profile and Resource Profile. There are a number of questions that need extra consultations to be ready. It is therefore recommended that a copy of profiles be shared with stakeholders of the GoTriple service so they are answered appropriately. Examples of the questions are answered in sections 2.2 and 2.3 as Provider Profile and Resource Profile respectively.

Onboarding Process

Generally, there are three phases for successful onboarding and listing of a resource in the EOSC Catalogue. There are validations in each of the phases by the system, provider, or/and onboarding team. The onboarding team is made up of members of EOSC-Hub, EOSC-Enhance, and EOSC Future projects. They work behind the scenes making sure all inquiries concerning service onboarding are answered.

Phase 1: Registration of Providers Authorised User:

An authorized user is the person the Provider has authorized to be the administrator of the provider's profile. This person should be selected during the onboarding preparation stage as elaborated above. To register the authorized user, the user navigates to the provider's portal from the EOSC portal. Select the appropriate Authentication and Authorization Infrastructure AAI mechanism to register your credential into the EOSC Portal. Before logging on, you will be asked to accept the EOSC privacy policy and confirm that you are indeed an authorized representative for the organization.

Phase 2: Onboarding of EOSC Provider:

Once the authorized user starts onboarding the provider by completing and submitting the online EOSC provider's Profile form. The online form is equivalent to the provider form used during the onboarding preparation. The system validates all mandatory fields and field types before the form is submitted. The onboarding team also validates the submitted form before the organization is registered as a provider in the EOSC system. Registration is confirmed when a feedback email is received from the onboarding team that the organization is successfully onboarded. Similarly, an email will be sent by the onboarding team if there is a problem during validation highlighting the issues. All issues are resolved before it finally is registered in the EOSC system. Feedback is usually provided within one working day.

Phase 3: Onboarding of EOSC Resource:

At this point, the authorized user has access to the provider's dashboard and can perform actions that include onboarding a resource or service. At the dashboard, it clicks on the "Add a resource" to complete and submit your online resource profile form. The form is equivalent to the Resource Profile. An automatic validation of some of the fields is done before it is submitted. The onboarding team also validates the first resource that the provider tries to onboard. If validation is successful, a feedback email from the onboarding team confirms that the resource is successfully onboarded and listed in the EOSC marketplace. Afterwards, any additional resources to be onboarded by the provider are not validated by the onboarding team.

Onboarding of service or other resources can be done using the documentation available at https://providers.eosc-portal.eu/openapi. A token is needed for onboarding a service using the API. The token can be obtained via https://aai.eosc-portal.eu/providers-api/.

For more information on the detailed procedure you can access: Tetteh Ocansey, Joshua, & Thiel, Carsten. (2021, June). TRIPLE Open Science Training Series: EOSC Onboarding (26 May 2021). Zenodo. http://doi.org/10.5281/zenodo.5036685

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2.2 Provider profile

The provider profile requires different information linked to the ownership of the service. In the case of TRIPLE, the provider profile can change, if we consider the lifetime of the TRIPLE project or the period after the project.

During the TRIPLE project, the provider profile will be a federation of partners coming from the TRIPLE consortium. Most probably not all the partners will be part of this federation depending on their involvement in the technical development of the service. Two consultations among the consortium have already shown a strong interest of the TRIPLE partners to be part of this federation. A third one will be held a few months before the end of the project in order to finalise the governance model of GoTriple. This is why this deliverable is highly linked to the work done by WP7 Innovation, Exploitation and Sustainability. Results of the work done in WP7 will be used to feed this part when GoTriple will be added as a service in the EOSC Portal. As explained in the deliverable 7.2 "Intermediate Report on Exploitation and Sustainability Strategy"[7], the TRIPLE consortium – or at least partners who are willing to – will be involved in the strategic, scientific and technical decisions related to the platform, which will in any case be part of the services catalogue of OPERAS Research Infrastructure. The deliverable 7.2 has planned to set up a Collaboration Agreement (based on the DESCA model but a simplified one) to establish the governance of the GoTriple platform with the different bodies and responsibilities. This Collaboration Agreement will also define a coordinating institution, most probably CNRS - but this is not determined yet. Once this document has been established, a Service Level Agreement (SLA) between the coordinator of the Collaboration Agreement (on behalf of all the partners) and OPERAS AISBL will be signed. This is what has been defined in the intermediary report but some questions are still open and they determine the way to complete the provider profile.

The process to prepare the Collaboration Agreement and identify which TRIPLE partners would like to join will be defined in WP7. Once this work is done, the TRIPLE partners will be asked to fill their provider profile on the EOSC catalogue. As the "Final Report on Exploitation and Sustainability Strategy'', provided by WP7 is planned for January 2023, the new governance structure will be set up before the end of the project, which means that GoTriple as an EOSC resource will be updated accordingly.

As part of the federation, each institution will have to create a profile on the EOSC portal in order to be identified as one of the providers of GoTriple. Key functions have been established to clarify the role of the different institutions related to GoTriple: CNRS represents the service provider which is made by the federation and composed by the resource providers. OPERAS Research Infrastructure is the resource organisation and GoTriple is the discovery service for the infrastructure and part of its catalogue.

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[7] 📄 D7.2 FINAL_V1.pdf

2.3 Resource profile

A Resource Profile describes the information requested in order to get the GoTriple service onboarded into the EOSC portal. It consists of several information blocks with mandatory and optional fields.

During the 3rd phase of the onboarding process, the resource itself will be described. In the description field of the blocks, there are mandatory and optional fields. Obviously, all mandatory elements will be provided as shown below, as long as they are not private information (e.g. personal information, etc.). For the optional fields, we classified them into 2 types:

1. Optional fields that are relevant to the GoTriple service: those that are currently available are provided below and those indicated as "will be created later" shall be provided as to when they become available in the future.
2. Optional fields that are deemed irrelevant to the service will not be provided: those will be discarded to avoid too much information.

The first onboarding phase of GoTriple will happen in 2021. However, there will be updates within the project timeline and a final version will be provided by 2023, which we refer to as step 2 in the following description.

Basic Information

Name: GoTriple Discovery platform

Resource organisation: OPERAS AISBL

Resource providers: Every organisation who has committed to the maintenance

Webpage: https://www.gotriple.eu

Marketing Information

Resource Description: The GoTriple platform is an innovative multilingual and multicultural discovery solution for the social sciences and humanities (SSH). It will provide a single access point that allows researchers to explore, find, access and reuse materials such as literature, data, projects and researcher profiles at European scale. Conceived as an entry point to the EOSC, it is one of the dedicated services of OPERAS, the Research Infrastructure supporting Open Scholarly Communication in the SSH in the European Research Area.

Tagline: Discover, Connect, Collaborate in the Social Sciences and Humanities

Logo: https://project.gotriple.eu/wp-content/uploads/2021/08/logo-gotriple_300ppi_transparent-back.png

Multimedia: *None (will be created later)*

Use cases: *None (will be created later)*

Classification

Scientific Domain: "Humanities" + "Social Sciences"

Scientific Subdomain: All subdomains from Humanities ("History and archaeology", "Languages and literature", "Philosophy, ethics and religion", "Arts" and "Other humanities") + Social Sciences ("Psychology", "Economics and business", "Educational sciences", "Sociology", "Law", "Political sciences", "Social and economic geography", "Media and communications", "Other social sciences")

Category: Scholarly Communication, Data

Subcategory: Scholarly Communication ("Discovery", "Publication", "Outreach", "Other") + Data ("Scientific/Research data")

Target Users: Researchers, Research Community, Research project, Providers

Access Type: Virtual

Access Mode: Free

Tags: discover/discovery, connect/connection, collaborate/collaboration, research data, publications, researcher profiles, findable/findability, accessible/accessibility, open access, interoperable/interoperability, reuse/reusability/reusable, SSH, social sciences, humanities, annotation, trust building system, visual discovery system, recommender system, crowdfunding

Geographical and Language Availability Information

Geographical Availability: Worldwide

Language Availability: English

> *Note: In a 2nd step, the interface might become multilingual*

Resource Geographic Location: France

Contact information

Because of the nature of this data (private) and of the deliverable (public), the information of this subsection will not appear here, but will only be provided directly to the ESOC onboarding team.

Maturity information

Technology Readiness Level: TRL7

> *Note: In a 2nd step, the TRL will be at least 8*

Life Cycle Status: Beta

Note: In a 2nd step, the Life Cycle Status will be "Operation"

Open Source Technologies: Apache Camel, Elasticsearch, SCRE, Symfony

Version: 0.1

Last Update: *Day of beta public release*

Change Log: *None (will be created later)*

Dependencies information

Required Resources: EGI Check-In

Related Resources: Recommender system, Trust building system, Visualization components, Open web annotation tool, Visual discovery system

Note: Of course, only the ones that will be part of the EOSC Marketplace, see Part 3

Related Platforms: *None*

Attribution information

Funding Body: European Commission

Funding Program: Horizon 2020 - INFRAEOSC-2019

Grant/Project Name: Grant Agreement 863420 / TRIPLE project

Management information

Helpdesk Page: *None (will be created later)*

User Manual: *None (will be created later)*

Terms Of Use: *None (will be created later)*

Privacy Policy: *None (will be created later)*

Access Policy: *None (will be created later)*

Service Level: *None*

Training Information: *None (will be created later)*

Status Monitoring: *None*

Maintenance: *None*

Access and order information

Order Type: Fully open access

Order page: *None*

PART 3 ROADMAP FOR INTEGRATION

CNRS will take care of the integration of the GoTriple platform in the EOSC with the support of the Technical Coordinator of OPERAS Research Infrastructure. The integration is made in two steps to take into account the need to establish a clear governance of the platform and the availability of the service. Those steps will be done as follows:

- Step 1: When the GoTriple prototype is released (planned for the end of September 2021), some time will still be dedicated for bug fixing, and the previously described information will be onboarded. We might add some specific information that is in the "None (will be added later)" category, but not all of these. Therefore, step 1 will be fulfilled by the end of November 2021.
- Step 2: When the GoTriple Platform is released as a fully production service, the EOSC Marketplace entry for GoTriple will be renewed and updated. It is planned for March 2023.

Innovative Services in the EOSC Catalogue

For what concerns the onboarding of the GoTriple innovative services, the situation varies for each of them: while there is no doubt that the GoTriple platform will be onboarded in the EOSC catalogue, a specific distinction has to be made per each innovative service. Every partner developing the innovative services is responsible for the decision about, and also the actual onboarding process of their services.

Even if the present document focuses on the registration of the whole GoTriple system into the EOSC Catalogue, it makes sense to analyse the possibility for each single Innovative Service to be onboarded in the EOSC Portal as well.

Discussions on this topic have started amongst the TRIPLE consortium by some of the partners involved in Work Package 5. Albeit a definitive position hasn't emerged yet, the current state of decisions should be documented, and it can be summarized in the following three positions:

- innovative service already included in the EOSC Catalogue
- planning to onboard the innovative service
- currently evaluating this possibility.

Before delving into the details for each service, it is interesting to point out that none of the partners behind the Innovative Services in TRIPLE has refused "per se" the possibility to feature their service in the EOSC Portal, which is definitely a sign of the positive perception around this pan-European infrastructure.

It has been recognised that to be included in the EOSC Portal can expose the service to a large audience at the European level and to possible prospects that at present mainly consist of EOSC partners and EU decision makers, but in the future will also include researchers and end users.

Also, it makes sense to consider TRIPLE's Innovative Services for being enlisted in the EOSC Catalogue, since they are quite mature (TRL >=8) and, especially, can be reapplied in different domains, not necessarily limited to the, albeit vast, SSH disciplines.

TRIPLE partner OKMaps has already included its main visual search service on openknowledgemaps.org based on the Head Start framework in the EOSC Catalogue. Its description can be currently accessed at the following EOSC URL: https://marketplace.eosc-portal.eu/services/open-knowledge-maps. The Head Start framework is also used to implement TRIPLE's innovative Discovery System (T5.6) and - partially - the Visualization service (T5.4); as said before, the technology behind it has been significantly refactored in the course of TRIPLE.

The service has been enlisted in 2020: its description page provides an overview of the service and links to the documents which are necessary to be compliant with the registration in the EOSC Catalogue. From a sustainability viewpoint, OKMaps employs a membership model whereby organizations become supporting members and provide a yearly contribution. In return, the supporting members are invited to co-create the platform and its free and open services (see https://openknowledgemaps.org/supporting-membership for more details).

The OKMaps diagram components are not listed in the EOSC yet (only the knowledge map components) but as they are part of GoTriple Core codebase, they will follow the same timeline as the GoTriple platform for the onboarding. The feedback on this inclusion in the EOSC Catalogue from OKMaps so far has been that the onboarding process was rather straightforward, but that the listing does not drive a lot of traffic to the service.

The identification of the right commercial model to be compatible with the presence in the EOSC Catalogue is what at present Net7 is evaluating, in order to find the most suitable option for its open annotation tool Pundit.

Pundit, since its inception, has always been a free-to-use tool, whose costs of development and operation have been completely sustained by Net7 (also by participating in funded research projects). Now the company wants to identify the right commercial model for Pundit, which can allow the service to be self-sustainable.

At present the commercial model of a EOSC Catalogue service must be specified in the "Resource Access Mode" attribute, whose possible values are:

- Free: Users can freely access the Resources provided, registration may be needed.
- Free conditionally: Users are granted access based on defined policies; such policies usually apply to Resources being offered with "sponsored use" to meet some national or

EU level objective; for instance, a country may offer Resources with "sponsored use" to support national researchers involved in international collaborations.

- Peer-reviewed: Users are selected based on scientific excellence evaluation, originality, quality and technical and ethical feasibility of an application evaluated through peer review conducted by internal or external experts of the activity to be supported by the Resource
- Paid: Users need to pay a fee to access the Resource
- Other.

It is pretty evident that these options don't exactly cover the most typical "freemium" model of cloud services, which can be freely used with some limitations, while through the payment of a fee, users can exploit all the advanced functionalities offered by the service (possibly with different levels of use, according to the amount of money that is paid - e.g. a silver/gold/platinum level). This scenario can be only generically described as "Other" in the Resource Access Mode attribute.

It is also true that at present Net7 hasn't exactly defined the boundaries and characteristics of the freemium model through which Pundit can be offered.

All these reasons explain why the company hasn't detailed yet an exact roadmap (but just a firm intention) for onboarding its Pundit service in the EOSC Catalogue. In any case, it is also interesting to point out that Net7 is evaluating the enrollment of another of its cloud services for the SSH domain (the Muruca publishing platform for scholarly editions - https://www.muruca.org/) in the EOSC Catalogue.

While a general interest in the possibilities of being enlisted in the EOSC Catalogue has been manifested by partners Know Center and MEOH, respectively for their Innovative Services ScaR, the TRIPLE Recommender, and the MEOH App, that is the Trust Building System, a definitive decision, and a consequent onboarding roadmap, haven't been finalised yet by them.

As of September 2021, the plan to onboard the innovative services into the EOSC catalogue can be summarized as follows:

Innovative service	Already part of the EOSC catalogue	Plan to be part of the EOSC catalogue	No decision taken yet
Recommender system			✓
Trust building system			✓
Visualization components	✓ (as part of the Head Start service)		

Open web annotation tool		✓	
Visual discovery system	✓ (see OKMaps' Head Start service)		

CONCLUSION

This deliverable shall be read as an Instant T of the EOSC onboarding process. The EOSC portal is about to evolve with the new project EOSC Future. It is highly important to follow the evolutions carefully to consider changes in the process but also other dependencies that are not known for now. The EOSC is still an ongoing process, built from different projects, organisations and perspectives. This explains why the procedure described in this report might need to be adapted when the platform in itself will be ready to onboard.

However, this report paves the way for a proper integration of the TRIPLE discovery service into the EOSC and contributes to structuring the future federation of members that will manage the service. Building and providing a collaborative service is not an easy process and the way GoTriple has been thought, with core and innovative services, implies considering different aspects of the whole platform for onboarding. In this perspective, this deliverable can inform other services that are organised as GoTriple.

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