OPERAS Initial Technical Design

DELIVERABLE 5.1

Sy Holsinger
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ON THE ROAD TO SUSTAINABILITY: PAVING THE WAY FOR OPERAS TO BE AN EFFICIENT OPEN SOCIAL SCIENCES AND HUMANITIES SCHOLARLY COMMUNICATION RESEARCH INFRASTRUCTURE

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TERMINOLOGY

CAPEX   Capital Expenditure
COESO   Collaborative Engagement on Societal Issues (EU project)
EA   OPERAS Executive Assembly
GA   OPERAS General Assembly
HRB   Horizon Results Booster
IMS   Integrated Management System
OCT   OPERAS Coordination Team
OPEX   Operational Expenditure
PRISM   Peer Review Information Service for Monographs
SAC   Scientific Advisory Committee
SIG   Special Interest Group
SMS   Service Management System

SPM	Service Portfolio Management
SSH	Social Sciences and Humanities
STB	OPERAS Services and Technology Board
TRL	Technology Readiness Level
VERA	Virtual Ecosystem for Research Activation

Abstract

This document offers a comprehensive overview of the current OPERAS portfolio of services, summarising the development activities and key components utilised or integrated within the portfolio. It highlights the diverse range of services offered and their significance in covering the social sciences and humanities (SSH) research landscape and how they are managed. A final report will be delivered at M36.

Contents

Executive summary

OPERAS offers a comprehensive approach to scholarly communication, supporting the entire cycle of scholarly communication and enabling greater community control over openness and accessibility. OPERAS aggregates, federates, and scales up resources, providing services to increase the overall quality of social sciences and humanities (SSH) research.

The OPERAS service portfolio has grown, and as a result, services were re-grouped into eight categories: Discovery, Analytics, Quality Assurance, Research4Society, Multilingualism, Training, Operational and Collaboration Tools.

The last year was primarily centred around the technical development of our services. We witnessed many services transition between different phases, and we successfully implemented a system to manage and monitor these transitions effectively. Additionally, we established a robust governance structure to ensure smooth operations of our services.

At the start of 2022, there were only 4 services in Beta, with 6 services either in the design phase or earlier. Therefore, it was a busy year from a development perspective. By mid-2023 (the timing of writing), 5 services are now in production, 4 in Beta and only 1 still under design.

Notably, the GoTriple discovery service, which enables users to discover and reuse open scholarly resources in multiple languages, allows users to connect with other authors and researchers in SSH providing innovative tools such as visualisation, analytics, web annotation, trust building and recommender systems.

PRISM (Peer Review Information Service for Monographs) rolled out its production service in November 2022, which aims to improve transparency and trust in Open Access book publishing by providing standardised information about the peer-review process.

VERA, a new platform that allows researchers to collaborate on citizen science projects, providing support throughout the entire project process, went from the design phase to alpha over the year, with the beta version made available at the start of 2023.

Pathfinder went through a redesign based on several user workshops to ensure that the service meets the needs and expectations of Editors and Press/Publishing Directors to discover the services that they need in the full editorial process. It was recently released into Beta in August 2023.

The OPERAS Metrics service, which collects usage and impact metrics from various

sources related to published Open Access books, can be accessed, displayed and analysed from a single access point. The new version of Metrics is currently in Beta, soon to be released in Production.

Other services have continued to remain available with a continual service improvement approach such as Hypothèses, the platform that provides a space for SSH research blogs, fostering innovative formats of scholarly communication and offering multilingual content as well as the OPERAS.

During this period, we also worked on refining our service management framework, aiming to enhance the overall efficiency and effectiveness of our offerings. We have been diligently analysing both costs and usage patterns to optimise resource allocation and improve cost-effectiveness.

In September 2023, several of our services are going through changes as they transition between phases. During this time, we are also actively working on preparing marketing and communication campaigns to promote our offerings effectively.

One of our primary focuses is on VERA sustainability, which involves important work in the Horizon Results Booster (HRB) and finalising the COESO project by December 2023.

Additionally, we are introducing new services, and two of these are under particular consideration. The first is the Translation service, where a design study has been produced for a platform that aims to provide a collaborative environment for researchers and professionals to translate and edit scientific documents in multiple languages and we are exploring how to continue its development to provide optimal support. The second is the Innovation Lab, where we are currently defining the service offer and devising the business model.

Furthermore, several ongoing projects are considering OPERAS as a potential mechanism for supporting their project outputs, which is an exciting opportunity for us.

As we look ahead to 2024, we have a comprehensive Service Roadmap in place. Our focus will be on sustaining our current services, while also actively seeking and capturing new opportunities to expand and grow. We remain committed to refining our service costs analysis and taking necessary actions to optimise our operations.

1. Introduction

OPERAS offers a comprehensive approach to scholarly communication, supporting the entire cycle of scholarly communication and enabling greater community control over openness and accessibility. OPERAS aggregates, federates and scales up resources, providing services to increase the overall quality of social sciences and humanities (SSH) research.

This document offers an initial overview of the current OPERAS portfolio of services, summarising the development activities and key components utilised or integrated within the portfolio. It highlights the diverse range of services offered and their significance in covering the SSH research landscape. A final report will be delivered at M36.

Terminology used follows the FitSM® lightweight service management standard[1], specifically FitSM-0, which provides a common vocabulary used by the other parts of the standard (in particular by FitSM-1) and as the IT Service Management approach being adopted by OPERAS.

Several of the services supported by the OPERAS-PLUS project have their own dedicated deliverables provided further details, namely D5.2 "Metrics Service", D5.3 "Pathfinder", D5.4 "PRISM", D5.5 "Translation Design Study".

Therefore, this document is structured as follows:

- Section 1: introduces the document and its structure.
- Section 2: provides an overview of the current OPERAS service portfolio
- Section 3: details the development activities over the last 18 months including information on future activities
- Section 4: offers the underlying service management approach and progress on implementation with usage examples
- Section 5: concludes the overall document.

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[1] www.fitsm.eu

2. Current Service Portfolio Overview

OPERAS offers a comprehensive approach to scholarly communication, supporting the entire cycle of scholarly communication and enabling greater community control over openness and accessibility. OPERAS aggregates, federates and scales up resources, providing services to increase the overall quality of SSH research.

OPERAS offers a range of useful services that can greatly benefit researchers and authors in the SSH community. These services enable researchers to discover open scholarly resources, improve the quality of peer-review practices, engage in collaborative citizen science projects, and more.

There are three types of services provided by OPERAS:

1. **Managed:** Services managed by OPERAS, responsible for overall coordination, delivery and evolution.
2. **Community:** Services managed directly by community providers but discoverable through the OPERAS catalogue. These services are required to have sustainable structures to be established, but receive direct OPERAS participation, contribution and support.
3. **Internal:** Services necessary for managing and operating the OPERAS Research Infrastructure, both technical and non-technical.

These services can be grouped into seven categories: Discovery, Analytics, Quality Assurance, Research4Society, Training, and Operational and Collaboration Tools.

2.1. OPERAS Service Catalogue

Discovery Services

Quality Assurance Services

Research for Society Services

Analytics Services

GoTriple
Discovery platform for SSH publications, researcher profiles and projects

PRISM
Peer Review Information Service for Monographs

vera
activating research
Activating Research in Citizen Science

Metrics
Usage and impact metrics of Open Access content

Pathfinder
Find your way in the maze of editorial services for academic publishing in SSH

hypotheses
A platform for humanities and social sciences research blogs

The current service portfolio with some brief descriptions are provided below, with further details available for the services supported by the OPERAS-PLUS project via their own dedicated deliverables: D5.2 "Metrics Service", D5.3 "Pathfinder", D5.4 "PRISM", D5.5 "Translation Design Study":

- GoTriple[2]: enables users to discover and reuse open scholarly resources in multiple languages. It also allows users to connect with other authors and researchers in the humanities and social sciences and provides innovative tools such as visualisation, analytics, web annotation, trust building and recommender systems.
- Metrics[3]: collects usage and impact metrics from various sources related to published Open Access books, which can be accessed, displayed and analysed from a single access point.
- PRISM[4] (Peer Review Information Service for Monograph): aims to improve transparency and trust in Open Access book publishing by providing standardised information about the peer-review process.
- Hypothèses[5]: a platform that provides a space for SSH research blogs, fostering innovative formats of scholarly communication and offering multilingual content.
- VERA[6]: a new platform that allows researchers to collaborate on citizen science projects and provides support throughout the entire project process.
- Pathfinder[7]: enhances the visibility of editorial services and connects editors and editorial managers with services and service providers.
- Translation: Though this service is undergoing only a design study, it is included here as it is a dedicated task part of OPERAS-PLUS WP5. The platform aims to provide a collaborative environment for researchers and professionals to translate and edit scientific documents in multiple languages.

OPERAS also offers a range of professional services to support the management and coordination of scholarly communication in the SSH. This includes consultancy services on topics such as FAIR data management, IT service management (ITSM), policy development and Open Science. OPERAS also provides communication and outreach services to help increase the visibility and impact of SSH research.
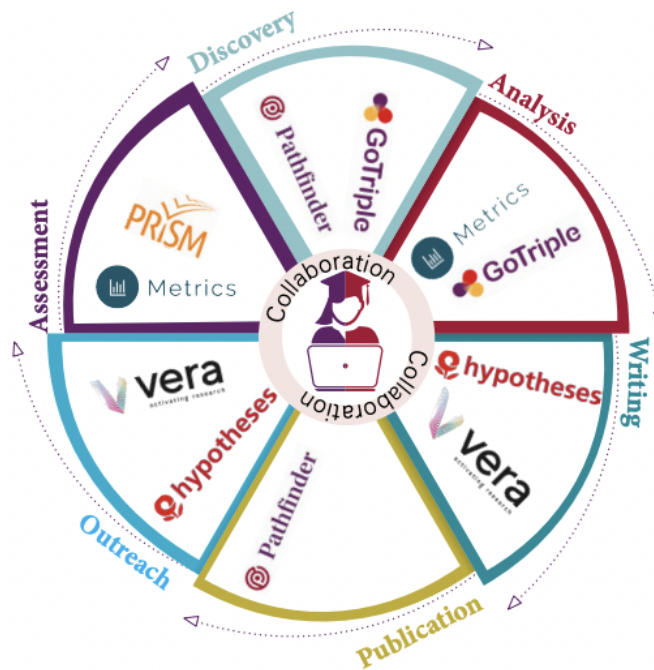
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[2] https://gotriple.eu
[3] https://metrics.operas-eu.org
[4] https://www.doabooks.org/en/librarians/prism
[5] https://hypotheses.org/
[6] https://vera.operas-eu.org
[7] https://pathfinder.operas-eu.org/

Figure 1: OPERAS Services and Research Lifecycle

2.2. OPERAS Internal Services

Internal services include:

- FitSM®[8]: a training and certification program in lightweight service management mainly for OPERAS members.
- OPERAS ID[9]: provides a single solution for user registration across all services, offering federated identity such as ORCID, Google, EGI Check-in.
- Messaging[10]: dedicated Mattermost server for collaborative messaging.FitSM® is a training and certification program in lightweight service management mainly available for OPERAS members..

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[8] www.fitsm.eu
[9] https://id.operas-eu.org
[10] https://mattermost.com/

3. Service Development

3.1. Service Phases

There are a number of different approaches and methodologies to describing the lifecycle of services. The following table summarises the naming conventions, descriptions for each as well as the equivalent Technology Readiness Level (TRL) that OPERAS has adopted.

Service Phase	Definition	TRL Equivalent
Evaluation	Early stage discussions and documentation regarding a specific opportunity	1–2
Design	Approved service starting the design and development of the service	3–4
Alpha	Prototype available and testing in limited scale ongoing	5–6
Beta	Version available for wider scale testing	7
Production	Feature complete version with majority of service management aspects defined	8–9
Discontinued	Service no longer available for new customers, but still available for legacy users	--
Retired	Service no longer available and no longer being used by anyone	--

Table 1: Service Phases

Technology Readiness Levels (TRL)

TRLs are a method of estimating technology maturity of components during the acquisition process. For non-technical components, you can specify "n/a". For technical components, you can select them based on the following definition from the EC:

- TRL 1 – basic principles observed
- TRL 2 – technology concept formulated
- TRL 3 – experimental proof of concept
- TRL 4 – technology validated in lab

- TRL 5 – technology validated in relevant environment (industrially relevant environment in the case of key enabling technologies)
- TRL 6 – technology demonstrated in relevant environment (industrially relevant environment in the case of key enabling technologies)
- TRL 7 – system prototype demonstration in operational environment
- TRL 8 – system complete and qualified
- TRL 9 – actual system proven in an operational environment (competitive manufacturing in the case of key enabling technologies).

3.2.   Service Roadmap

The OPERAS service roadmap tracks the current status of the various services, as well as the timing of key milestones, mainly for planned service phase changes. This view helps to link to the communications teams for preparing relevant messages. It also maps to the projects and funding sources that are supporting the development.

This strategic overview is crucial as many of the OPERAS services are spread across almost all service phases with varying timings as well.

Service	Status	Type	Category	2022				2023				2024				Funding Source
				Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	
GoTriple	Production	Managed	Discovery													TRIPLE
Metrics	Beta	Managed	Analytics													OPERAS-PLUS
VERA	Beta	Managed	Research4Society													COESO
Pathfinder	Beta	Managed	Discovery													OPERAS-PLUS
Hypotheses	Production	Community	Research4Society													OpenEdition
PRISM	Production	Community	Quality Assurance													OPERAS-PLUS
Translation	Design	Community	Multilingualism													OPERAS-PLUS
FitSM Training	Production	Internal	Training													OPERAS, Projects, Fees
Messaging (Mattermost)	Production	Internal	Collaboration													OPERAS-PLUS
OPERAS ID (AAI)	Beta	Internal	Operations													OPERAS AISBL

Figure 2: OPERAS Service Roadmap Overview

3.3.   Service Development

At the start of 2022, there were only 4 services in Beta, with 6 services either in the design phase or earlier. Therefore, it was a busy year from a development perspective. By mid-2023 (the timing of writing), 5 services are now in production, 4 in Beta and only 1 still under design. The following table provides an overview of the service phase changes for each service.

Service	Q1 2022	Q3 2023
GoTriple	Beta	Production
Metrics	Beta	Beta
VERA	Design	Beta
Pathfinder	Design	Beta
Hypotheses	Production	Production
PRISM	Beta	Production
Translation	Design	Design
FitSM Training	N/A	Production
Messaging	N/A	Production
OPERAS ID	N/A	Beta

Table 2: Service Phase Changes

3.4. Future Development

3.4.1. Marketing and Sustainability

2024 will be a critical year for OPERAS, as shown in the service roadmap, because the majority of services will be in the production phase. This will require not only a focus on continual service improvement and on marketing, but on sustainability as well.

Through the legal entity, OPERAS AISBL ensures the sustainability and long-term development of its activities and services, as well as the effective collaboration and coordination of its members and partners. The AISBL status also enables OPERAS to engage in partnerships and collaborations with other organisations and stakeholders, and to represent the interests of the SSH research community at the European and international levels.

However, as OPERAS is transitioning towards becoming a European Research Infrastructure Consortium (ERIC), current financial and sustainability planning is being defined. Active collaboration is ongoing to ensure that all services are taken into consideration, both current and future. A cost analysis has already started as part of the ESFRI questionnaire update, which is helping to understand total costs and forecasting,

splitting between minimum required for operations and maintenance (OPEX) and development (CAPEX) and separating community services (in-kind) and managed services (OPERAS financial support). It is important to specify that for OPERAS, given a more human effort driven costs, CAPEX has been considered more as "development" effort rather than the more traditional "purchasing" costs.

Current Service Name	Service Type	Funding Source	Expenditure Type	25% Included (Y/N)	2021	2022	2023	2024	2025	2026	2027
GoTriple	Managed	TRIPLE + In-Kind + TBD	CAPEX					€97,553	€101,455	€105,513	€109,734
		In-Kind (MoU) + TBD	OPEX	N				€53,250	€55,380	€57,595	€59,899
			Subtotal		€0	€0	€0	€150,803	€156,835	€163,109	€169,633
Metrics	Managed	OPERAS-PLUS + TBD	CAPEX		?	€33,600	€79,440	€64,410	€66,986	€69,666	€72,452
		TBD	OPEX	N	?		€26,480	€34,355	€35,729	€37,158	€38,644
			Subtotal		€0	€33,600	€105,920	€98,765	€102,715	€106,824	€111,097
PRISM	Community	OPERAS-PLUS + In-kind (DOAB/OAPEN)	CAPEX			€16,000	€32,000	€8,000	€96,000	€8,320	€8,653
		In-kind (DOAB/OAPEN) + TBD	OPEX	N		€16,000	€32,000	€33,280	€34,611	€35,996	
			Subtotal		€0	€16,000	€48,000	€40,000	€129,280	€42,931	€44,648
Hypotheses	Community	In-Kind (OpenEdition)	CAPEX		€27,937	€28,950	€30,000	€30,000	€30,000	€30,000	€30,000
		In-Kind (OpenEdition)	OPEX	Y	€293,336	€303,975	€315,000	€315,000	€315,000	€315,000	€315,000
			Subtotal		€321,273	€332,925	€345,000	€345,000	€345,000	€345,000	€345,000
VERA	Managed	COESO + TBD	CAPEX		€81,000	€81,000	€77,625	€27,000	€28,080	€29,203	€30,371
		TBD	OPEX	N	--	--	--	€119,700	€124,488	€129,468	€134,646
			Subtotal		€81,000	€81,000	€77,625	€146,700	€152,568	€158,671	€165,018
Pathfinder	Managed	OPERAS-PLUS + TBD	CAPEX		--	€34,333	€68,667	€17,000	€17,680	€18,387	€19,123
		TBD	OPEX	N	--		€22,889	€51,000	€53,040	€55,162	€57,368
			Subtotal		€0	€34,333	€91,556	€68,000	€70,720	€73,549	€76,491
Translation	Managed	OPERAS-PLUS + TBD	CAPEX		--	€7,600	€32,300	€51,300	€53,352	€55,486	€57,706
		TBD	OPEX	N	--		€2,692	€17,100	€17,784	€18,495	€19,235
			Subtotal		€0	€7,600	€34,992	€68,400	€71,136	€73,981	€76,941
OPERAS ID (AAI)	Internal	OPERAS AISBL	CAPEX		--	--	€5,082	€5,082	€5,285	€5,497	€5,717
		TBD	OPEX	N	--	--	€6,050	€6,050	€6,292	€6,544	€6,805
			Subtotal		€0	€0	€11,132	€11,132	€11,577	€12,040	€12,522
FitSM Training	Internal	OPERAS-PLUS	CAPEX		--	--	--	--	--	--	--
		Pay-per-use	OPEX	N/A	--	--	--	--	--	--	--
			Subtotal		€0	€0	€0	€0	€0	€0	€0
Messaging	Internal	COESO + TBD	CAPEX		--	--	€1,125		€0	€0	€0
		TBD	OPEX	N	--	--	€2,250	€2,745	€2,855	€2,969	€3,088
			Subtotal		€0	€0	€3,375	€2,745	€2,855	€2,969	€3,088
Service Support Tools	Internal	OPERAS-PLUS + AISBL	CAPEX			€400			€0	€0	€0
		TBD	OPEX	N		€450	€2,800	€2,912	€3,028	€3,750	€4,500
			Subtotal		€0	€850	€2,800	€2,912	€3,028	€3,750	€4,500
			Grand Total		€402,273	€506,308	€720,400	€934,457	€1,045,715	€982,824	€1,008,937
		Managed & Internal Services Subtotal			€81,000	€157,383	€327,400	€549,457	€571,435	€594,892	€619,288

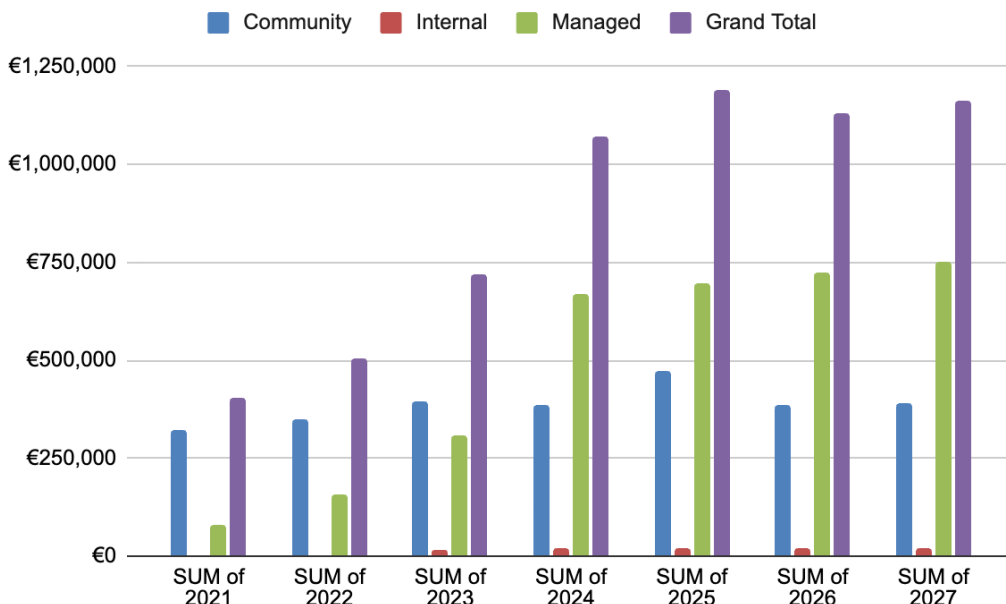**Figure 3: Screenshot of service cost estimates for ESFRI Costbook 2023**

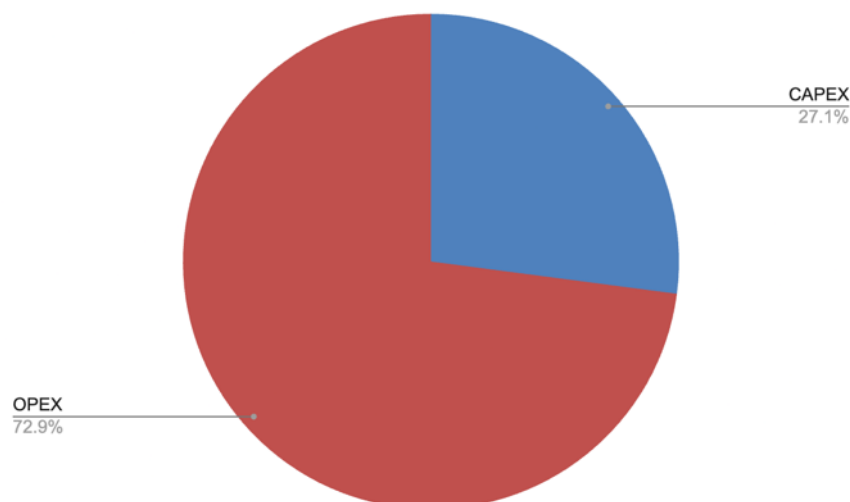**Figure 4: Estimated split between service types**

Figure 5: Estimate cost split between CapEx and OpEX

Finally, OPERAS is participating in a number of EC-funded projects. To ensure organisational, technical and financial sustainability, projects aim to identify Key Exploitable Results (KER) with legal and administrative options that can provide the long-term sustainability of each KER. The OPERAS AISBL and wider RI, is often seen as a potential channel to be explored; however, sometimes sustainability strategies need to be coordinated across a variety of projects and activities. Something that has already been taken advantage of with the GoTriple service as one of the main KERs from the TRIPLE project, where OPERAS serves as the legal host while also supporting the agreement structure. Though it does not necessarily have to be the mechanism that is used, it represents the possibility for KER to be continuously exploited where needed.

3.4.2. Service Usage and KPIs

Service usage and key performance indicators (KPIs) are crucial components in evaluating the effectiveness and impact of a service. Service usage pertains to the extent to which a service is utilised by its intended audience, encompassing metrics such as the number of users, frequency of usage and the specific features accessed. Monitoring service usage can provide insights into user engagement and the service's overall value to the target audience.

On the other hand, KPIs are measurable performance indicators that enable the assessment of the service's success in meeting predefined goals and objectives. These metrics can include customer satisfaction ratings, response times, service uptime and other relevant benchmarks. By closely tracking service usage and KPIs, organisations can identify areas for improvement, optimise service delivery and align their efforts with the needs and expectations of their users.

In Q2 2023, as the majority of services were reaching higher levels of maturity, more focus was put on how both usage statistics and KPIs could be defined, collected and presented. Though at the initial stages, some initial charts and graphs are starting to be created to better understand if the method provides the right information and can be easily understood. Below are a few examples, with a more mature and detailed presentation in the follow up deliverable will be presented. In addition, WP5 is coordinating with WP8 in order to contribute to the development and eventual content provision of the Monitoring Dashboard for OPERAS (See D8.2).
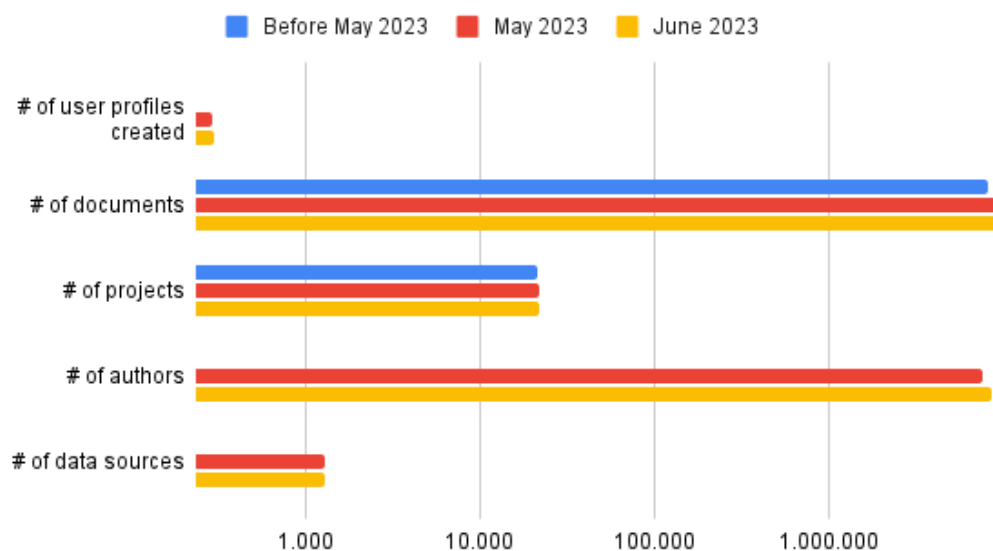
Figure 6: Initial snapshot of GoTriple content statistics

Unique Visitors

Figure 7: GoTriple unique visitors
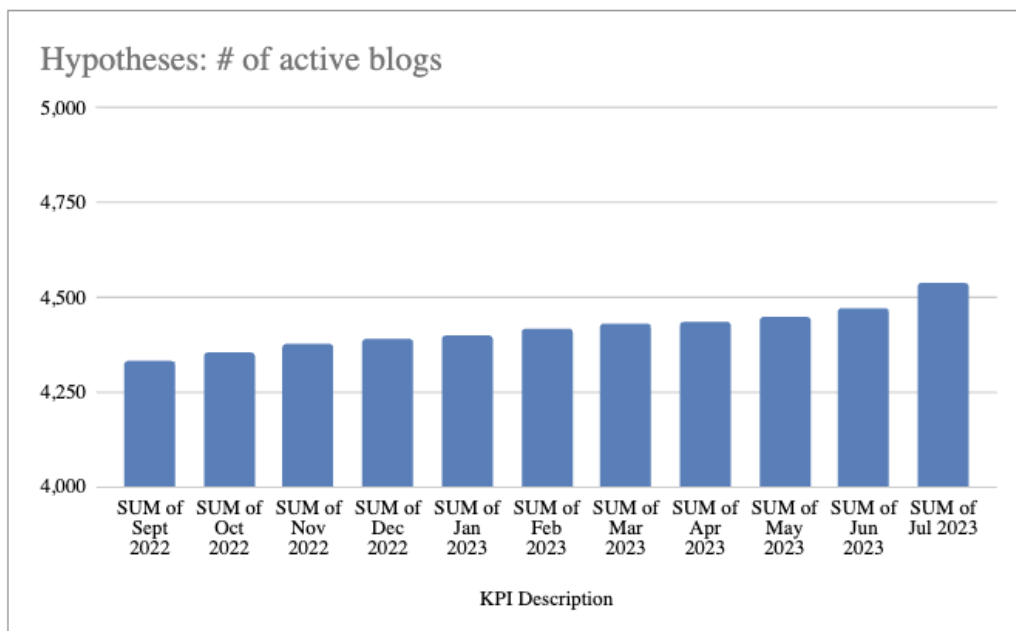
Figure 8: Hypotheses # of active blogs

3.4.3. Potential Opportunities

OPERAS Innovation Lab

A dedicated Work Package (WP4) of the OPERAS-PLUS project is the creation of an OPERAS Innovation Lab to stimulate ideation and potentially prototyping of innovations for the SSH community. The WP is putting into practice the recommendations stemming from the Future of Scholarly Communication report, prepared in the OPERAS-P project through extensive research into OPERAS user needs[11]. The general objective is to establish the OPERAS Innovation Lab as the knowledge hub for the OPERAS community, providing guidelines and counselling to stakeholders wishing to engage with innovative outputs, as well liaising between those stakeholders and relevant e-infrastructure providers to:

1. Structure the Innovation Lab within OPERAS by establishing working relationships with OPERAS members and other e-infrastructure providers, who may provide services for innovative and FAIR outputs
2. Provide coherent and up-to-date knowledge on innovations to the OPERAS community
3. Support and sustain innovative outputs in social sciences and humanities disciplines
4. Strengthen the prestige of innovative publications through prototyping their evaluation.

In addition, the Innovation Lab will implement repeatable and sustainable innovation processes to ensure innovation culture within OPERAS that aims to foster innovative solutions for Open Scholarly Communication in SSH. To do so, the OPERAS Innovation Lab will interface with the OPERAS Community, OPERAS Bodies and the Open Science Community as a whole, including Industry.

One opportunity that the Innovation Lab presents is a potential additional revenue stream for OPERAS, which could include industry participation. As the Innovation Lab is still under development, future business models will be presented in subsequent reports.

OPERAS Innovation Fund

The purpose of the OPERAS Innovation Fund will be to support innovative projects that align with OPERAS' vision, mission and values, including community projects.

In so doing, it is intended to enhance the capacity of OPERAS to quickly assess, fund

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[11] https://operas.hypotheses.org/4746

and scale open-source solutions that have been developed either by publicly funded research organisations or by private companies and to adapt or integrate them into OPERAS Research Infrastructure to better support Open Access, Open Science and Open Innovation in Europe. The OPERAS Innovation Fund supports the generation of open-source, public goods that address the most pressing challenges in Open Scholarly Communication, with a special emphasis on Social Sciences and Humanities to the broadest extent of the concept.

As such, the OPERAS Innovation Fund is not intended to provide continuing support for ongoing research projects/programs or to serve as a substitute for national or European funding. The OPERAS Innovation Fund is a fund intended to seed innovative interdisciplinary research and it will be very intimately articulated with the OPERAS Innovation Lab.

The creation and constitution of the fund will be analysed and prepared during the transition period towards the ERIC creation.

Pricing Schemes for Individual Services

Applying pricing schemes to individual services isn't as straightforward in the academic and research space as in private industry, especially in areas such as around open access, where there are higher expectations that services are offered free at point of delivery. However, in order to add flexibility in how the OPERAS services are sustained, continued exploration of applicable pricing schemes will be explored. It is expected to initially focus on two popular pricing models that work well with a continually available free option: the "freemium" model, where only premium features or enhanced functionalities have a fee; and membership, offering exclusive benefits and rewards to members who pay a recurring fee.

It is important to also recognise that numerous other schemes exist, each with its unique benefits and drawbacks that will not be discounted entirely, just potentially not an initial focus e.g. one-time purchase, usage-based, amongst many others.

Applying pricing schemes to individual services requires thoughtful consideration of the target audience, the unique value proposition of the service, and the overall strategic objectives. While freemium and membership fees are powerful pricing models, other strategies should be explored to find the right fit for the specific service and customer/user group.

4. Service Management

4.1. Reference Standards

Using management standards offers numerous benefits. Some of the key advantages include:

- **Improved Efficiency:** Structured frameworks and best practices that help streamline processes, reducing inefficiencies and optimising resource utilisation.
- **Enhanced Quality:** Ensure consistent quality in products and services, leading to increased customer satisfaction and loyalty.
- **Risk Reduction:** Identify and mitigate potential risks, thus enhancing overall resilience.
- **Compliance and Regulation:** Meet legal and regulatory requirements, reducing the risk of penalties and legal issues.
- **Recognitions:** Gain credibility and increase partnerships.
- **Competitive Advantage:** Differentiate from competitors, showing commitment to excellence and continuous improvement.
- **Cost Savings:** Through improved efficiency, reduced waste and better resource management.
- **Customer Trust and Confidence:** Build trust with customers and stakeholders, as it demonstrates a commitment to quality and reliability.
- **Consistency in Operations:** Provide a common language and set of practices, promoting consistency in operations across different departments or locations.
- **Continuous Improvement Culture:** Emphasise a culture of continuous improvement, encourage seeking ongoing advancements in processes and performance.
- **Employee Engagement and Satisfaction:** Boost employee engagement and job satisfaction by reducing ambiguity and promoting a sense of accomplishment.
- **Easier Collaboration and Integration:** When multiple organisations adopt the same standards, it facilitates collaboration and integration in supply chains and partnerships.

Overall, management standards offer a systematic and proven approach to organisational management, enabling organisations to drive excellence, meet customer expectations and navigate complex environments effectively.

4.1.1. ISO 9000 – Quality Management

ISO 9000 is an internationally recognized set of standards for quality management systems. ISO 9000 provides a comprehensive framework that organisations can follow to ensure consistent and high-quality products and services, ultimately leading to enhanced customer satisfaction and continuous improvement.

Developed and maintained by the International Organization for Standardization (ISO), ISO 9000 is applicable to any organisation of any size and industries. Its principles focus on customer focus, process efficiency and a commitment to meeting regulatory and legal requirements.

The aim is for OPERAS to achieve a formal certification by 2027 as it transitions towards becoming an ERIC.

4.1.2. FitSM – IT Service Management

IT Service Management is a discipline that helps provide services with a focus on customer needs and in a professional manner. It is widely used in the commercial and public sectors to manage IT services of all types, but current solutions are very heavyweight with high barriers to entry.

FitSM is an open, lightweight standard for professionally managing services. It brings order and traceability to a complex area and provides simple, practical support in getting started with ITSM. FitSM training and certification provide crucial help in delivering services and improving their management. It provides a common conceptual and process model, sets out straightforward and realistic requirements and links them to supporting materials.

Through FitSM, the aim is to conduct effective IT service management in the federated environment and achieve a baseline level of ITSM, which can also act in support of 'management interoperability' in federated environments (e.g., EOSC). It is also compatible with other ITSM standards such as ISO/IEC 20000 and can be seen as complementary to ISO9000.

In addition, FitSM offers an opportunity to receive a formal certification backed by the certification authority, APMG International, for anyone successfully passing exams, which is offered at multiple levels: Foundation, Advanced and Expert.

The aim is for OPERAS to achieve a formal certification by 2027 as it transitions towards becoming an ERIC. Implementation has already started.

Service Portfolio Management	DONE
Service Level Management	IN PROGRESS
Service Reporting	NOT STARTED
Service Availability and Continuity Management	NOT STARTED
Capacity Management	NOT STARTED
Information Security Management	IN PROGRESS
Customer Relationship Mgmt.	IN PROGRESS
Supplier Relationship Management	DONE
Incident and Service Request Mgmt.	DONE
Problem Management	IN PROGRESS
Configuration Management	DONE
Change Management	DONE
Release and Deployment Mgmt.	SET-UP
Continual Service Improvement	SET-UP

Image 9: OPERAS IT Service Management System implementation status[12]

4.2. Service Governance

The Services and Technology Board (STB) is responsible for managing the portfolio of services and associated technologies regarding OPERAS AISBL and OPERAS federated services. This includes all services that are planned, live or to be retired/discontinued. The STB conducts regularly scheduled service reviews. It also collects inputs from other relevant groups or leaders such as EA, GA, OCT, SIGs, SAC, etc. for research community needs and evolution of technology.

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[12] Full process descriptions available at: https://www.fitsm.eu/download/748/?tmstv=1692808999
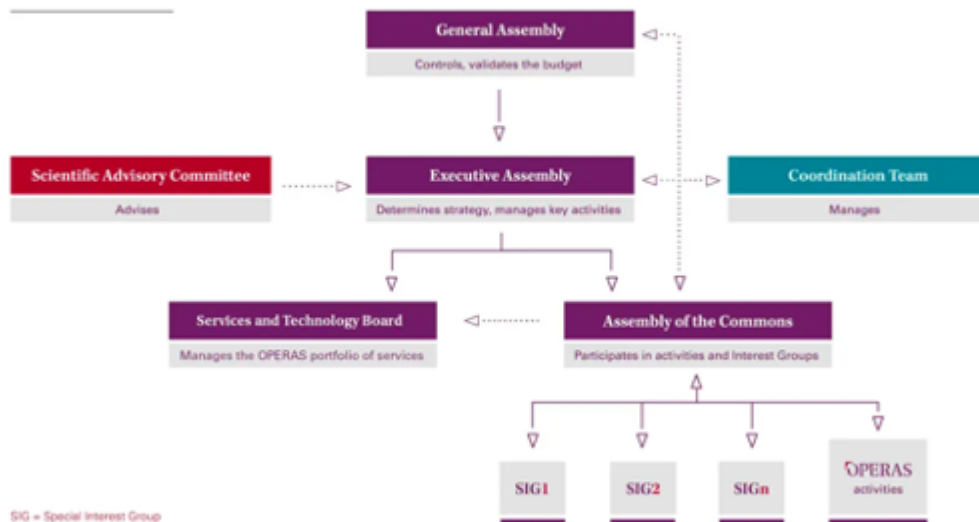
Image 10: OPERAS Governance Structure

Responsibilities include:

- Advise OPERAS management on the priorities for evolving the service portfolio
- Conduct regularly scheduled service reviews with service owners
- Maintain a service strategy and implement the recommendations from the OPERAS GA, EA, OCT and SIGs
- Steer the creation, review and approval of service design and transition packages, including descriptions and specifications alongside any information to be added to the service portfolio
- Ensure that major changes to services and solutions are endorsed by the process managers/owners
- Obtain approval from the relevant governance bodies for all new services and services to be discontinued

The Board is governed by the OPERAS General Assembly through the OPERAS Executive Assembly to investigate any activity within its Terms of Reference.

The STB holds regular monthly meetings.

4.3.   Support Tools

OPERAS offers/uses three supporting tools for the information, project and service management:

Confluence

Collaborative information management system to share knowledge efficiently, capture requirements and assign tasks

Jira Service Management

Helpdesk for external user communication and general ticketing system (incidents, bugs, improvement suggestions, etc.)

GitLab

An open source end-to-end software development platform with built-in version control, issue tracking, code review, continuous integration (CI) / continuous delivery (CD), etc.

4.3.1.   Confluence

Offered by Atlassian, Confluence[13] is a collaborative workspace software platform that enables teams to create, organise and share content, fostering seamless collaboration and knowledge sharing within organisations.

OPERAS uses Confluence as its Integrated Management System (IMS), as well as offers it to projects, such as OPERAS-PLUS. An IMS is a set of processes, tools and technologies designed to efficiently collect, store, organise, retrieve and disseminate information within an organisation or a specific context.

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[13] https://www.atlassian.com/software/confluence

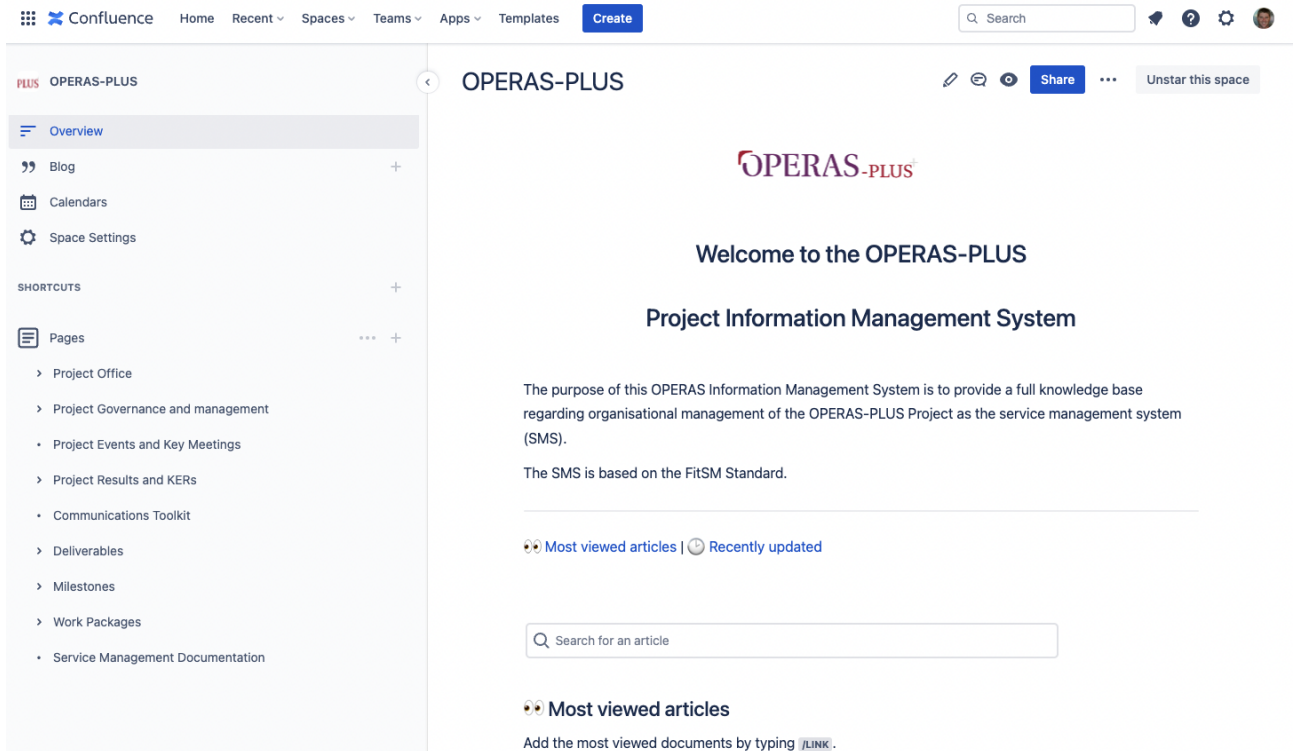**Image 11: Screenshot of OPERAS Confluence Frontpage**

Image 12: Screenshot of OPERAS-PLUS Project Confluence Frontpage

4.3.2. JIRA

Jira is a project management and issue tracking software also developed by Atlassian. It allows teams to plan, track and manage projects and tasks efficiently, facilitating collaboration, workflow automation and real-time reporting.

Specifically, OPERAS uses its Jira Service Management[14] product as a true helpdesk, because it provides an additional functionality to communicate directly with external users who aren't only licensed users.

The widget has been embedded on all webpages of managed services, where users can submit tickets directly.

First implemented in Oct 2022, a total of 92 tickets have been submitted at the time of writing (Aug 2023) with 68 of them resolved/closed (~70%).

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[14] https://www.atlassian.com/software/jira/service-management
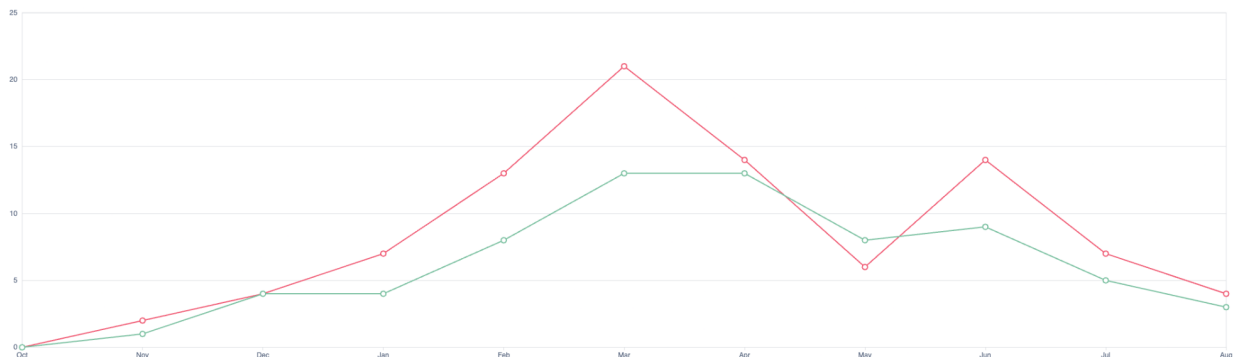
Image 12: OPERAS tickets in Jira created and resolved

4.3.3. GitLab and GitHub

GitLab is a web-based DevOps platform that provides a complete set of tools for version control, continuous integration/continuous deployment (CI/CD), code review and issue tracking. It allows software development teams to collaborate effectively, manage repositories, automate the software delivery process and track project progress in a single integrated environment.

GitHub is a web-based platform and version control system that enables developers to collaborate on software projects and track changes to their codebase. It provides a central repository for storing and managing source code, allowing developers to work together, review code and manage software releases efficiently. GitHub's features include issue tracking, pull requests, continuous integration and seamless integration with various development tools, making it a popular and powerful platform for software development and open-source projects.

As many of the OPERAS services were developed via different projects and different project teams over the years, the tools used were also selected on an individual basis. One activity moving forward will be to see how to harmonise the different approaches in order to have a more coherent and consistent approach to how OPERAS services are managed from a technical development perspective. Below are 2 examples of the TRIPLE project using GitLab and the Metrics service using GitHub. Additionally, the OPERAS ID development initially used the TRIPLE project GitLab space. One improvement would be to shift development areas as part of an OPERAS umbrella with individual services having dedicated spaces under it.
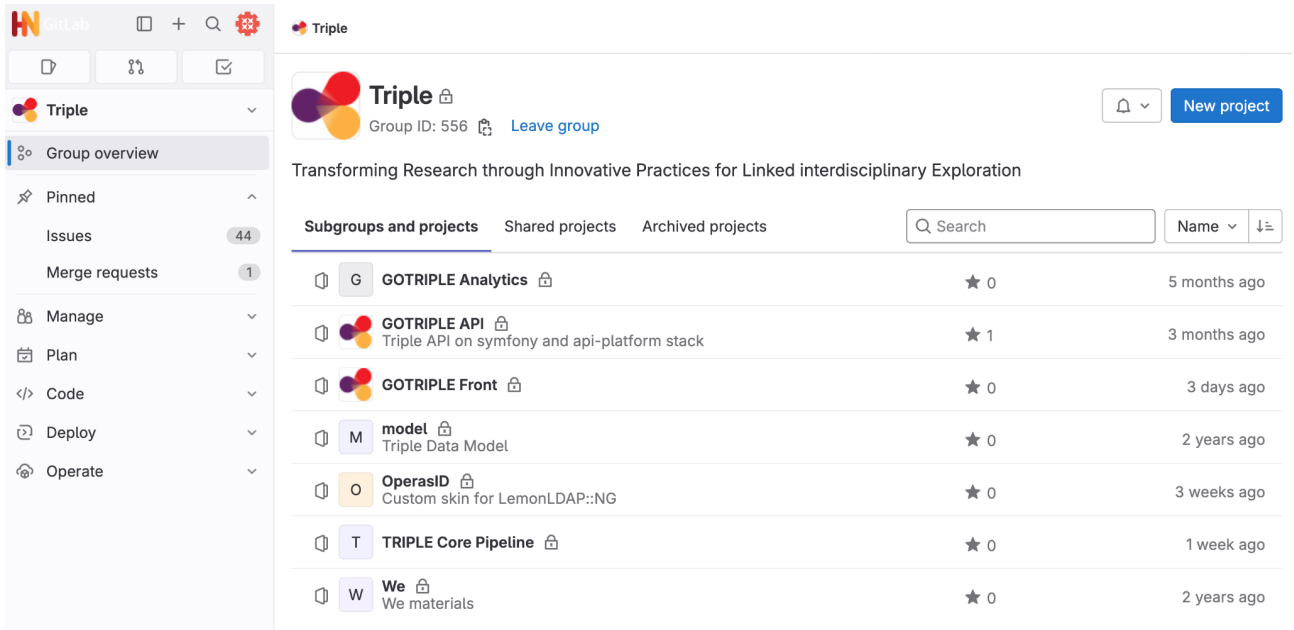
Image 12: Screenshot of GoTriple GitLab space
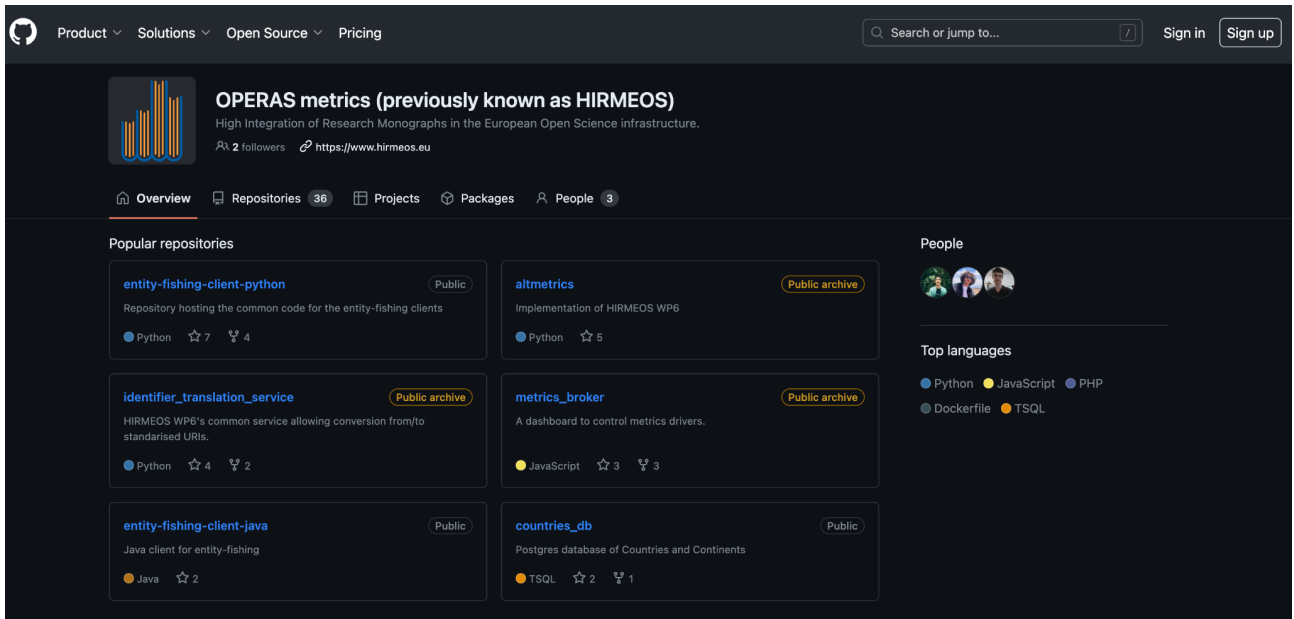
Image 12: Screenshot of Metrics GitHub space

5. Conclusions and Next Steps

As we move forward, we are shifting our focus towards marketing and sustainability. This transition brings about exciting opportunities for growth and expansion. However, it also poses challenges, particularly in ensuring the long-term sustainability of our initiatives.

In September 2023, several of our services are going through changes as they transition between phases. During this time, we are also actively working on preparing marketing and communication campaigns to promote our offerings effectively.

One of our primary focuses is on VERA sustainability, which involves important work in the Horizon Results Booster (HRB) and finalising COESO by December 2023.

Additionally, we are introducing new services, and two of these are under particular consideration. The first is the Translation service, and we are exploring how to continue its development to provide optimal support. The second is the Innovation Lab, where we are currently defining the service offer and devising the business model.

Furthermore, several ongoing projects are considering OPERAS as a potential mechanism for supporting their project outputs, which is an exciting opportunity for us.

As we look ahead to 2024, we have a comprehensive Service Roadmap in place. Our focus will be on sustaining our current services, while also actively seeking and capturing new opportunities to expand and grow. We remain committed to refining our service costs analysis and taking necessary actions to optimise our operations.