

The Swiss solution for managing research data



A. Introduction

The swissuniversities P5 programme "Information scientifique: accès, traitement et sauvegarde" aims to establish a network of national service providers¹ as a basis for Open Science (continuation of the P5 programme). One of the conditions for allocating federal subsidies to the development of these services is that they must be sustainable at the end of their funding, which corresponds to 31.12.2020 for the Data Life-Cycle Management project (DLCM – dlcм.ch), which is the object of this document.

The University of Geneva (UNIGE), which is leading the DLCM project, has committed to swissuniversities to implement a long-term archiving solution at national level for research data for the Swiss Higher Education Institutions (HEI). This commitment represents a strategic challenge in a sector in high demand due to the urgent need of HEI to comply with SNSF requirements in terms of research data management.

The purpose of this document is to present the so-called "OLOS" national solution, which represents one outcome of the DLCM project, so that the various HEIs can position themselves on their possible adhesion to this national service.

B. Market Analysis

The HEI's needs for data archiving are very heterogeneous both in terms of the volumes of data to be archived and their format, as well as the resources (infrastructure, software and human resources) made available to researchers.

An ever-increasing number of publishers and funders require the archiving of research data². The study³, jointly commissioned by the SNSF and swissuniversities, highlighted the wide variety of research data repositories used by our Swiss researchers. Although it is financially illusory to bring all these deposits into compliance, a nationally "imposed" solution would hinder the researchers' freedom.

Although generic data repositories such as Zenodo, Dryad and Harvard Dataverse fulfil SNSF's requirements (publishing of FAIR data, non-commercial), they are based on storage infrastructures abroad, offer little flexibility to institutions and little integration with

¹ The target segments for offering these services are Swiss researchers and HEI.

² https://v2.sherpa.ac.uk/view/funder_visualisations/1.html

³ von der Heyde, M. (2019). Open Research Data: Landscape and cost analysis of data repositories currently used by the Swiss research community, and requirements for the future [Report to the SNSF]. Retrieved from <https://doi.org/10.5281/zenodo.2643460>

researchers' tools, and do not have a business model that guarantees their long-term sustainability.

On the other hand, many discipline-specific repositories are hosted by HEI but do not benefit from SNSF funding because they do not meet the FAIR eligibility criteria. The compliance of all these repositories would indeed represent a significant cost even though the volume of publications is relatively low.

Faced with the urgency of the need for compliance, many HEI are actively seeking a solution and have demonstrated an interest in using OLOS (see Annex 1).

Thanks to its highly modular architecture, OLOS can be adapted both to small institutions that need a "turnkey" solution and to larger ones that can rely on OLOS to complement what they have already implemented. In addition, unlike other repositories (as those cited above), OLOS allows HEI to define, implement and evaluate their own preservation policy: the number of copies, the type of media, the choice of provider, whether or not to use institutional infrastructure, the retention period, etc., or to use the proposed default policy.

C. The OLOS Solution

OLOS services will be available from January 2020 for all Swiss HEI on a free basis until December 2020. OLOS is the only solution for long-term archiving of research data which is

- non-commercial, on Swiss territory, and meets the FAIR requirements of the SNSF;
- compliant with international standards for data interoperability;
- compatible with all formats in use in the different scientific disciplines and therefore constitutes a generic repository of research data;
- designed "the swiss way", i.e. decentralized while ensuring national indexation;
- flexible in terms of the number of copies and their physical storage in institutional and national data centers;
- based on modern technology that interconnects with researchers' environments (such as Electronic Laboratory Notebooks or Laboratory Information Management Systems).

D. Cost Model

The OLOS services revenue model is based on the principle of institutional licenses determined according to the number of users of an HEI. This service does not include the storage costs, as each institution is free to decide the number of copies and where these copies reside. However, OLOS has a connector to SWITCH LTS for those institutions that have no in-house solution⁴.

For the price calculation of the OLOS services, whose operating costs are presented in Annex 2, we rely on four assumptions :

⁴ OLOS and SWITCH are soon to reach an agreement so that OLOS can act as an aggregator for SWITCH LTS. The minimum volume currently provided by SWITCH LTS is 256 TB/year to 85 CHF and only for partner HEI. If OLOS acts as an integrator for HEI that have not already integrated SWITCH LTS, it could provide OLOS with a SWITCH LTS space without having to finance 256 TB in advance and make a commitment over 5 years.

1. HEI are invoiced on an annual basis for the use of the OLOS services, regardless of the volume of data (which is taken in charge separately).
2. The price for the use of the OLOS services by an institution is based on the number of member institutions, that is, between CHF 15 and CHF 35 per research staff employed by a HEI, depending on the number of HEI that subscribe to the service. In Annex 3, the two scenarios (CHF 15 and CHF 35) are considered.
3. The price could decrease if a federal subsidy from SEFRI was introduced so as to enhance the value of national services.
4. UNIGE, which has the expertise of the service, contributes with an in-kind contribution.

OLOS will be a fee-based service starting January 2021, that is, at the end of the DLCM project.

E. Conclusions

OLOS is the only generic non-commercial long-term archiving solution for research data on Swiss territory that meets the SNSF's FAIR requirements. Designed "the Swiss way", OLOS can be adapted to both small institutions in need of a "turnkey" solution and larger ones wishing to integrate OLOS within their IT ecosystem. In addition, unlike other repositories, OLOS allows HEI to define, implement and evaluate their own preservation policy. Its revenue model is based on the principle of institutional licenses, determined according to the number of researchers within an HEI, presently estimated in the range 15 to 35 CHF per researcher, depending on the number of HEI that subscribe to OLOS and/or whether a Swiss subvention were to be accorded.

Annex 1: HEI having manifested an interest in OLOS

HEI	Contact	Comments
UZH	Martin Brändle Data Services and Open Access team	Interest shown by the University Board to consider DLCM for archiving research data
UNIFR	Alexandre Gachet CIO	The solution was presented to the IT department in July 2018
UNIBE	Jennifer Morger Digitale Dienste & Open Science Et Marion Prudlo Direction bibliothèque	Presentation scheduled the 21 st of November 2019
HES-SO	Isabelle Lucas Cheffe de projet Open Science	HES-SO is partner of the DLCM project
ZHAW	Martin Jaekel Leiter Stabsstelle Forschung und Entwicklung	ZHAW is partner of the DLCM project
EPFL	Fabien Figueras Gestionnaire de Services IT Vice-Présidence pour les Systèmes d'Information	Meeting scheduled for the 11 th of November 2019

Annex 2: OLOS's Operational Costs and Incomes

Estimation of the incomes is based on two scenario hypotheses:

- Scenario 1: if the HEI indicated under Annex 1 subscribe to the service, then the annual fee is 35 CHF per researcher (EPT R&D);
- Scenario 2: if all HEI subscribe to the service, then the annual fee is 15 CHF per researcher (EPT R&D)

In both cases, UNIGE would provide one FTE, as well equipment and office space (in-kind contributions). In the calculations, no SEFRI subventions are assumed.

Budgets 2021

CHARGES D'EXPLOITATION

Salaires	
Business manager	158'000
Développeur	150'000
Administrateur système	130'000
Total Salaires	438'000
Frais généraux	
Equipement et locaux	21'900
Conférences	10'000
Marketing & Communication	20'000
Frais administratifs	10'000
Autres	5'000
Total Frais généraux	66'900
Fournisseurs externes	
Hébergement (Switch Engines)	30'000
Total Fournisseurs externes	30'000
TOTAL	534'900

REVENUS	Scénario 1	Scénario 2
Apports UNIGE		
Equipement et locaux (in-kind)	21'900	21'900
Développeur (1FTE in-kind)	150'000	150'000
Total Apports UNIGE	171'900	171'900
Cotisations membres		
Scenario 1: HEI incl. UZH EPFL BE FR HES-SO ZFH	405'195	
Scenario 2: All HEI (except GE)		392'145
TOTAL	577'095	564'045
RESULTAT	42'195	29'145
	35 CHF/ept	15 CHF/ept

Annex 3 : OLOS Annual Fees For the Swiss HEI

Equivalents Plein Temps pour la R&D

UNI & EPF	EPT	OLOS 15 CHF	OLOS 35 CHF
ETHZ	5'660	84'900	198'100
UZH	3'357	50'355	117'495
EPFL	3'332	49'980	116'620
GE	2'843	42'645	99'505
BS	2'587	38'805	90'545
BE	2'499	37'485	87'465
LS	2'222	33'330	77'770
FR	812	12'180	28'420
NE	466	6'990	16'310
SG	411	6'165	14'385
USI	406	6'090	14'210
IHEID	227	3'405	7'945
LU	161	2'415	5'635
FS-CH	16	240	560
Total	24'999	374'985.00	874'965

HES	EPT	OLOS 15 CHF	OLOS 35 CHF
HES-SO	906	13'590	31'710
ZFH	671	10'065	23'485
FHNW	474	7'110	16'590
BFH	418	6'270	14'630
FHO	387	5'805	13'545
FHZ	340	5'100	11'900
SUPSI	284	4'260	9'940
KAL FH	17	255	595
Total	3'497	52'455	122'395

HEP	EPT	OLOS 15 CHF	OLOS 35 CHF
HEP Vaud	61	915	2'135
PH SG	52	780	1'820
PH Bern	41	615	1'435
PH Luzern	22	330	770
HEP FR	17	255	595
PH TG	13	195	455
PH GR	12	180	420
PH Zug	12	180	420
PH Schwyz	11	165	385
HEP-BEJUNE	11	165	385
HEP VS	10	150	350
PH SH	3	45	105
HETS-GE	1	15	35
FHZ-Musik	0	-	-
HfH	19	285	665
SHLR	1	15	35
EHB-IFFP-IUFFP	26	390	910
PH FHNW	106	1'590	3'710
SUPSI-DFA	20	300	700
PH Zürich	52	780	1'820
Total HEP	490	7'350	17'150

TOTAL: 28'986 R&D EPT

Note: OLOS 15 CHF : Coût de base calculé sur un prix de CHF 15 par EPT
 OLOS 35 CHF: Coût de base calculé sur un prix de CHF 35 par EPT