

## Project applications of the eighth call for proposals (February 2018)

Total number of applications: 11, list sorted by key area of focus, project ID.

| Key area of focus | Main Implementation action | Project ID | Project short title  | Project full title<br><i>Link to the abstract further below</i>                                       | Leading institution | Partner institution(s)   | Contact<br><i>linked to e-mail address</i> | Total cost / funding [kCHF]    |
|-------------------|----------------------------|------------|----------------------|---|---------------------|--|--|--------------------------------|
| eScience          | G-6                        | 181-001    | SUID                 | SUID - A Simple User Interface for DaSCH<br>→ <a href="#">Abstract</a>                                | UniBS               | SAGW; UniL   | Lukas Rosenthaler                          | 1'556.5 (100%) / 730.0 (46.9%) |
| eScience          | G-1                        | 181-002    | SWISSUbase           | SWISSUbase – a Modular Research Information and Data Archiving Solution<br>→ <a href="#">Abstract</a> | FORS                | UniL; UniZH  | Stefan Buerli                              | 1'852'9 (100%) / 932.9 (50.3%) |
| eScience          | R-1                        | 181-003    | LabKeyOnline         | LabKeyOnline – Cloud-based Research Data Management<br>→ <a href="#">Abstract</a>                     | UniBS               | -  | Thierry Sengstag                           | 474.1 (100%) / 236.4 (49.9%)   |
| eScience          | G-1                        | 181-004    | openRDM.swiss        | A National Data Management Service Based on the ETH RDM Platform<br>→ <a href="#">Abstract</a>        | ETHZ                | UniZH; ZHAW  | Henry Lütcke                               | 632.0 (100%) / 331.0 (52.4%)   |
| Basis             | B-5                        | 181-005    | SWITCH LT Storage    | SWITCH Long-term Storage for Research Data<br>→ <a href="#">Abstract</a>                              | SWITCH              | -  | Doron William                              | 2'097.2 (100%) / 923.6 (44%)   |
| Basis             | B-1                        | 181-006    | Swiss edu-ID Step2.2 | Swiss edu-ID Deployment Step 2.2<br>→ <a href="#">Abstract</a>  | SWITCH              | BFH; FFHS; FHSG; HSLU; HTW Chur; HWZ; UniL; UniNE; UniSG; ZHAW; ZHdK | Christoph Graf                             | 1'607.3 (100%) / 803.6 (50%)   |

| Key area of focus | Main Implementation action | Project ID | Project short title | Project full title<br><i>Link to the abstract further below</i>                       | Leading institution | Partner institution(s)   | Contact<br><i>linked to e-mail address</i> | Total cost / funding [kCHF]       |
|-------------------|----------------------------|------------|---------------------|---|---------------------|--|--|-----------------------------------|
| Publications      | G-1                        | 181-007    | SONAR               | SONAR – Swiss Open Access Repository<br>→ <a href="#">Abstract</a>                    | RERO                | HES-SO; HTW Chur; USI  | Miguel Moreira                             | 997.8 (100%) / 549.7 (55.1%)      |
| Services          | B-6                        | 181-008    | SLSP Real           | Realisierung Swiss Library Service Platform<br>→ <a href="#">Abstract</a>             | SLSP-AG             | BFH; ETHZ; FHO, HES-SO; UniBE; UniBS; UniFR; UniGE; UniSG; UniZH; USI; ZB ZH; ZHAW; ZHB LU; ZHdK | Wolfram Neubauer                           | 16'853'1 (100%) / 6'485.6 (38.5%) |
| Services          | G-6                        | 181-009    | Video4All           | Video4All: Barrierefreie Videos mit Opencast/SWITCHcast<br>→ <a href="#">Abstract</a> | ZHAW                | ETHZ; SWITCH; UniZH  | Alireza Darvishy                           | 131.3 (100%) / 65.5 (49.9%)       |
| eScience          | R-1                        | 181-010    | SwissDACS           | SwissDACS: Swiss Data Acquisition Service<br>→ <a href="#">Abstract</a>               | HES-SO VS           | BFH; HES-SO FR   | Alexandre Cotting                          | 453.0 (100%) / 226.5 (50%)        |
| eScience          | R-1                        | 181-011    | DLCM Phase 2        | Data Life-Cycle Management: Phase 2<br>→ <a href="#">Abstract</a>                     | UniGE               | HES-SO; HES-SO GE; ZHAW  | Pierre-Yves Burgi                          | 4'313.9 (100%) / 2'047.2 (47.5%)  |

## Abstracts

### SUID (181-001)

#### *A Simple User Interface for DaSCH*

The Data and Service Center for the Humanities (DaSCH) is a national research infrastructure, which provides longterm access to research data in the humanities. In the humanities, research consists of all digital artifacts that are used, created or resulting from the research process. While in natural and social sciences measurements or experimental data (e.g. polls) form the basis of research, the humanities research is mostly based on digital representations of cultural artifacts such as manuscripts, texts, images, audio and video recordings etc. The humanities generally conduct subsequent modelling in the form of progressive representation, indexing, processing, visualization, interpretation and annotation. For their frequently complex structured information, the history of the information (= data) itself is also important. Consequently, the DaSCH is clearly focused on “qualitative data” such as interlinked databases, complex data involving different media (text, dig. Facsimile, photographic images, video and film) with annotations, rich (commented) linkages and connection. It provides a deep, timestamp-based versioning on data field level and ARK-based persistent links to specific versions (using timestamps). The DaSCH completely implements the FAIR principles for all data. For images, the DaSCH implements the IIIF1 standard.

With this focus, the DaSCH is complementary to FORS and covers a fundamentally different domain than FORS, but maintains a well-established cooperation and exchange with FORS. The SWISSUbase project of FORS is complementary to SUID and a collaboration on a technical/informational level is arranged for.

The primary task of the DaSCH, as defined by the Swiss Academy for Humanities and Social Sciences (SAHSS), is to keep the research data available for the long term after the end of research project (“post mortem”). However, experience shows that for small and medium scale projects, migrating the data at the end is tedious, time-consuming, expensive and inefficient. Most of these projects rely on “homemade solution” using desktop data management tools such as FileMaker, MSAccess etc. The data modelling often does not follow standards, the data itself may be inconsistent and there are only poor tools for export, analysis and re-use of the data. The project proposed inhere builds a novel GUI2-layer on top of the basic DaSCH infrastructure which enables researchers to directly use the DaSCH framework from start on by offering an intuitive, easy to use web-based interface comparable to desktop tools. However, GUI will incorporate in-depth knowledge about data modelling, data representation etc. used in humanities. It will incorporate international authority files and databases (metagrid.ch, GND3, VIAF4, iconclass5 etc.). Thus, a researcher will be able to build an adequate data management system using the DaSCH repository as easy as it would be with a desktop data management tool. However, the data model and the data will quasi automatically follow accepted standards, be interoperable, findable and re-usable – and, last but not least – longevity is guaranteed. Access to the data can be controlled during the course of the project using the extensive permission system of DaSCH including embargo periods after the end of the project (according to the rules of the SNSF). [Back to top](#)

## SWISSUBase (181-002)

### *A Modular Research Information and Data Archiving Solution*

Many institutions in the Swiss academic and data landscape are confronted with the challenges of managing research data and ensuring long-term preservation and accessibility, but do not have the tools nor the knowledge needed to fulfill the requirements for increasingly open and data-driven research. In our view, implementation of a large number of isolated local solutions is cost-inefficient and should absolutely be avoided. Also, international or private solutions bring substantial risk with respect to ensuring control and sustainability. It therefore makes sense to have a national data infrastructure solution. It should, however, not be generic “one size fits all” - but rather a modular solution that is easily adaptable to the needs of different research institutions and scientific disciplines.

Starting from the FORSbase platform, an existing and proven national archive solution for Swiss social science re-search data, this two-year project will implement “SWISSUbase”, a national cross-disciplinary solution for Swiss universities and other research organizations in urgent need of local institutional data repositories for their researchers. Our intention is that starting with the partner institutions in this project SWISSUbase will fill the gap to soon become the central national tool for the curation, preservation, and dissemination of scientific research data in Switzerland, as well as the primary tool for information on ongoing and completed research projects in the country.

The advantages of making available such an established archiving solution to Swiss universities are multiple – FORSbase relies on international archiving standards and processes to ensure that data are preserved and accessible in the long-term. While each university, faculty, or institute will manage the research data and information from the projects of its own researchers, each node of SWISSUbase (e.g., a university, an administrative office, or a private research institute) will be interoperable, allowing public data and metadata from any scientific discipline to be discovered and accessed, regardless of one’s affiliation or location. Our approach relies on flexible modularity and loose technical interconnectedness – universities, faculties, and institutes will have the customized tools they need for their own archiving and research management purposes, while at the same time each separate instance will be joined up within a larger national infrastructure. [Back to top](#)

## LabKeyOnline (181-003)

### *Cloud-based Research Data Management*

The primary objective of this project is to offer the research data management platform LabKey as a national service: LabKeyOnline, to be hosted by SWITCH. LabKey is a widely used research-data management platform (active data management), which is offered as a service at University of Basel since 2014. The core of the LabKey data management system is a commercially-supported open-source software, which can be deployed without software maintenance costs.

In the current project, we aim at developing the interfaces to integrate LabKey in the set of national services offered in the Swissuniversities P-5 programme, and establish a production-grade service. The project leverages on a proof-of-concept standalone service deployed in the context of the DLCM project. In particular, we aim at:

1. Nationally compatible identity management through integration with SwitchAAI/Swiss Edu-ID
2. Integration in the SWITCH Community Service Hub (for accounting, monitoring and automated billing)
3. Establishing interfaces for seamless interoperability with DLCM long-term data preservation service
4. Develop a lightweight module for semantic annotation of LabKey-hosted data (thus enabling the possibility for full and easy FAIR compliance<sup>1</sup> of data exported from the system)
5. Develop training material for the service-specific features.

The pricing model is based on a fixed “fee for service access” concept for metadata, with the option to host large files at the rate offered on the SWITCHengines platform.

The present project is thus focused on the creation of a cost-effective service management environment for LabKey and on its interoperability with other national services, with the aim of facilitating data management in research groups and in collaborative research. [Back to top](#)

## openRDM.swiss (181-004)

### *A national data management service based on the ETH RDM platform*

Nowadays funding agencies, journals and academic institutions frequently require research data to be published according to the FAIR (Findable, Accessible, Interoperable and Reusable) Data principles. On the other hand, the amount of data and information that are generated in scientific research labs and that needs to be documented and tracked is constantly increasing in size and complexity. For this reason, the classic way of documenting all scientific research work on paper laboratory notebooks, with data often stored in different locations, is no longer sustainable. In order to guarantee data FAIRness, every step of the research process needs to be accurately documented and data needs to be securely stored and backed up and annotated with enough metadata to make it reusable and reproducible. The use of an integrated Electronic Lab Notebook (ELN) and Laboratory Information Management System (LIMS) with data management capabilities can help researchers towards making their data FAIR. The Scientific IT Services of the ETH Zurich Informatikdienste (ETH SIS) have developed an ELN and LIMS based on the data management platform openBIS in close collaboration with scientists from ETH Zurich and other research institutions. Here we propose to setup a national service for research data management (RDM) based on the openBIS ELN-LIMS platform. The service will be available either as a cloud-hosted version on the SWITCHengines infrastructure or as a self-hosted version using the local infrastructure. The proposed project furthermore includes training activities so that researchers can successfully adopt the new service in their laboratories. Finally, we propose to extend the openBIS ELN-LIMS platform to improve interoperability with other data management and publication services, in particular national repositories.

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## **SWITCH LT Storage (181-005)**

### *SWITCH Long-term Storage for Research Data*

Over the past years, the question how research data should be managed, stored, curated and kept accessible over many years has increasingly come to the attention of not only the researchers involved but also led to the demand of funding agencies to address these issues within the scope of funded projects as a requirement for approval. Thus, there are many initiatives today working on the manifold aspects of these questions.

This project wants to address the key question of how to store large and growing sets of research data of the order of hundreds of Terabytes or Petabytes sustainably over a long period of time in a very cost-efficient manner. Given the large (and rapidly growing!) amount of research data present in the Swiss higher education sector, we believe that it is possible to exploit economies of scale in order to realize a solution at a cost that a single institution by itself cannot obtain.

The proposed project wants to proceed in a very pragmatic approach and concentrate on clear use-cases and needs of Swiss universities. A first version of the proposed long-term storage service shall be available already in early 2019 and serve as a second copy of research data while the primary copy stays on-campus. We have already identified a first customer for this use-case with whom we will closely collaborate in order to implement it. In the two subsequent years of the project, we intend to scale this first version and extend its functionality in order to be able to offer it to all Swiss universities according to their needs. This service is targeted primarily towards the IT Services of the Swiss universities (who typically aggregate local demand) or large projects that have to store high volume research data by themselves. [Back to top](#)

## Swiss edu-ID Step2.2 (181-006)

### *Swiss edu-ID Deployment Step 2.2*

#### **Planning 2018-2020**

While the current SWITCH edu-ID service is already offering advanced services to a number of resources, the full potential can only be unleashed when existing SWITCHaai customers adopt the SWITCH edu-ID. SWITCH plans to fully deploy SWITCH edu-ID by the end of 2020, with all organizations migrated to SWITCH edu-ID. To implement this, SWITCH is planning to carry out series projects, each carrying out three distinct groups of tasks:

1. Adoption planning (aka migration strategy planning): in these work packages, organizations are planning their adoption of the SWITCH edu-ID service with the support of SWITCH.
2. Adoption implementation (aka migration): in these work packages, organizations are implementing the plans they developed earlier with the support of SWITCH.
3. Functional extensions: SWITCH is extending the functionality of the service SWITCH edu-ID in line with the needs of migrating institutions and the demand of other SWITCH edu-ID service stakeholders.

#### **The project “Swiss edu-ID Deployment Step 2.2”**

A bundle of seven universities (4 cantonal universities, 2 UAS and 1 ETH institution) made the first step towards adopting the SWITCH edu-ID by developing an adoption plan in the predecessor project “Swiss edu-ID Deployment Step 1”. In this follow-up project, three universities are implementing the plans prepared in the predecessor project, while a number of new universities is doing their first step in parallel: preparing their own adoption plans awaiting implementation in one of the subsequent projects. [Back to top](#)



## SONAR (181-007)

### *Swiss Open Access Repository*

This project proposes to set up a Swiss Open Access Repository "SONAR", whose primary goal is to collect, promote and preserve scholarly publications by authors affiliated with Swiss public research institutions. This central repository operates as an aggregator, drawing content and metadata from existing platforms and institutional repositories (IR). In parallel, direct depositing of content by authors, or their representatives, is also possible. Alongside the national repository, SONAR also offers autonomous IR solutions as outsourced platform to serve Swiss partnering institutions of higher education ("Institutional Repository as a Service").

The project intends to lay the groundwork for maximizing the coverage rate of open access publications by Swiss institutional repositories, with an exploratory approach. A survey conducted in 2017 by one of the applicant institutions and covering 7 major Swiss institutional repositories, shows that existing IRs make openly available about 35% of the full-text articles authored by their affiliated researchers, when compared with articles available in international or disciplinary repositories such as PMC or HAL. In contrast, the study suggests that nearly 80% of the publications could be legally available under open access conditions. The project intends to explore and develop automated procedures for tracking down and collecting from external sources, such as international subject repositories, the largest possible number of publications that, while possessing an open access status, are either not registered as such in existing institutional repositories, or the end of their embargo period has not been acknowledged, or their full-text has not been deposited. SONAR can then feed those full-text publications back to the corresponding institutions, complementing and reinforcing existing Swiss repositories. The goal is to raise the coverage rate above 70%, thus doubling the current coverage of Swiss IRs.

The dissemination on the web of the content hosted by SONAR is also an important component of the proposed solution. Given that institutional repositories, where publications are deposited, are not the only location for searching publications, another key value proposition of the project is the creation of a highly interoperable repository powered with semantically rich data, import/export and content exposure with regard to external platforms and global search engines (Google Scholar, Twitter...). It is expected that through an interaction between SONAR and other scholarly content sources, researchers should be able to make their publications highly visible, citable and openly accessible in the long term, with the least possible effort.

Another focus of the project is data normalization and analysis, with the planned creation of a database of entities such as authors, publishers, journals, research institutions, funding agencies, research projects/grants and patents (the "SONAR data hub"). Automatic content processing procedures will be investigated to support the extraction of specific metadata, as successfully explored by the applicants in Europe PMC. By uniformly collecting and normalizing such data in a central database, the project should greatly reduce discrepancies and data drifts likely to emerge from the current Swiss IR landscape. SONAR builds on an existing service: RERO DOC, which is a multi-institutional repository operated since 2004 by RERO, the Library Network of Western Switzerland. This new development is meant to extend its range of

services and its institutional coverage. The proposed project is consistent with several principles formulated in the Swiss open access strategy commissioned by the Confederation through swissuniversities and the Swiss National Science Foundation, namely in the areas of resource coordination and pooling, as well as national monitoring. It also presents a high potential of collaboration with both existing services and ongoing projects in the framework of the program "Scientific information: Access, processing and safeguarding". [Back to top](#)

## SLSP real (181-008)

### *Realisierung Swiss Library Service Platform*

Wissenschaftliche Bibliotheken stehen weltweit vor einer Vielzahl von Herausforderungen, die einmal durch einschneidende technische Veränderungen und hierzu parallel durch grundlegende Veränderungen im Nutzerverhalten der Science Community geprägt sind. Diese und noch eine Reihe weiterer Einflussfaktoren haben dazu geführt, dass wissenschaftliche Bibliotheken die im Informations- und Kommunikationssektor ablaufenden Entwicklungen aufgenommen haben und sich verstärkt auf die Entwicklung von nutzerrelevanten Services konzentrieren. Hierbei ist es naheliegend, dass in diesem Kontext auch das Thema Kooperation, also das Erreichen von gemeinsamen Zielen durch intensive Zusammenarbeit eine neue Qualität erhalten hat.

Für die sehr heterogene Verbundlandschaft der Schweiz bedeutet dieser Ansatz, die aktuelle Situation kritisch zu reflektieren und Lösungen zu suchen, wie hier durch Kooperation neue Strukturen und bessere, die Wissenschaften unterstützende Dienstleistungsangebote entwickelt und angeboten werden können.

Im Jahr 2015 haben sich auf Basis dieser Überlegungen zehn Verbünde und Bibliotheken zusammengefunden, um die Idee einer nationalen Serviceplattform für wissenschaftliche Bibliotheken zu realisieren. Hierzu wurde ein umfassendes Konzept für eine solche Plattform entwickelt, deren Basis ein Bibliothekssystem der neuen Generation sein sollte. Der gesamte Projektablauf gliederte sich dabei in drei Teilabschnitte: Konzeptionsphase (August 2015 bis Februar 2017), Aufbauphase (März 2017 bis Februar 2018) und Realisierungsphase (März 2018 bis Dezember 2020). Die erste Phase ist erfolgreich abgeschlossen worden und die zweite Phase steht ebenfalls kurz vor einem positiven Abschluss; alle Ziele wurden erreicht, wenn auch mit einer gewissen Verzögerung.

Im vorliegenden Antrag geht es um die eigentliche Realisierung der Serviceplattform in technischer, bibliothekarischer und organisatorischer Hinsicht. Dieser Prozess gliedert sich in fünf Teilprojekte, wobei hier die Herausforderung darin besteht, dass diese Arbeiten in hohem Masse aufeinander abgestimmt ablaufen müssen. Eines der zu bearbeitenden Teilprojekte stellt darüber hinaus eine Besonderheit dar, da das Thema Mehrsprachigkeit ein Spezifikum für die Schweiz ist.

Die Antragsteller und die gesamte Community der wissenschaftlichen Bibliotheken der Schweiz, teilen die gemeinsame Vision einer nationalen Plattform auf der Grundlage einer zeitgemässen IT-Lösung ein umfassendes Serviceportfolio nicht alleine für Projektpartner, sondern darüber hinaus für einen grossen Kundenkreis an wissenschaftlichen Bibliotheken der gesamten Schweiz zur Verfügung stellen wird. [Back to top](#)

## Video4All (181-009)

### *Barrierefreie Videos mit Opencast/SWITCHcast*

Die Bedeutung von Video in der Lehre nimmt ebenso rasch zu wie die Zahl, der an den Hochschulen produzierten Videos. Damit wird die barrierefreie Konsumation von Video für Studierende mit Behinderung ähnlich wichtig wie der Zugang zu anderen Lehr- und Lernmaterialien. In der Schweiz nutzt die überwiegende Mehrheit der Hochschulen den von SWITCH angebotenen Dienst „SWITCHcast“ für die Herstellung und das Management von Videos.

SWITCHcast basiert auf Opencast, einer Open Source Software für automatische Videoaufzeichnung und Video Management, welche von einer Gemeinschaft internationaler Hochschulen entwickelt wird, u.a. der ETH Zürich und SWITCH. Opencast hat technische Ansätze für die Unterstützung von Menschen mit reduzierten Wahrnehmungsfähigkeiten (Untertitel, Zoom), ist aber im engeren Sinne nicht barrierefrei.

Das Ziel dieses Projekts ist es, in Kooperation mit der ETH Zürich, der Universität Zürich und SWITCH, die Opencast Software für Studierende mit Behinderungen barrierefrei zu machen. Barrierefreie Aufzeichnungen von Vorlesungen ermöglichen zum Beispiel sehbehinderten Studierenden, die Lernmaterialien zu nutzen. [Back to top](#)

## SwissDAcS (181-010)

### *Swiss Data Acquisition Service*

Following the initial success of the MedRED project mandated by swissuniversities, HES-SO Valais-Wallis has launched its Data Acquisition Unit (DAUnit), providing support and infrastructure for scientific data management, especially (but not limited) to health-related projects. The availability of this service for the HES-SO researchers in all of French-speaking Switzerland, has sparked interest from researchers of other Universities of Applied Sciences (UAS), and even launched collaborations with Clinical Trial Units, such as the CTU Bern.

This interest and the growing demand for such a service makes it necessary to extend the support provided by the DAUnit to the entire UAS network of researchers in Switzerland. Furthermore, and aligning with the current trends in data acquisition and citizen science, this extension will also require support for personal data management, and data acquisition from heterogeneous sources including monitoring devices.

This project extends the scope of the DAUnit in two main axes: First, it will extend the activities of the DAUnit to all UAS in Switzerland, providing the existing services for data acquisition, REDCap support, Data Management Plan, training, etc. Second, thanks to the collaboration on educational and research level and the integration in the consortium of the Berner Fachhochschule BFH, another bilingual UAS already involved in Patient Reported Outcome projects with university hospitals, it will integrate into its service support for the MIDATA platform, targeting personal data management and interfaces for different types of source (e.g. wearables, sensors, and other types of sources commonly used in data acquisition protocols). The proposed service, named SwissDAcS, will aim at simplifying data management tasks for UAS researchers, while taking care of security and privacy aspects, storage and preservation, data validation, etc. The service is expected to be self-sustainable after the end of the project, following the experience of the MedRED project and the DAUnit. The project incorporates the expertise on the health domain, by including the Health Institute of HES-SO Valais-Wallis, and the Haute Ecole de Santé HES-SO Fribourg. [Back to top](#)

## DLCM Phase 2 (181-011)

### *Data Life-Cycle Management: Phase 2*

The DLCM project aims at proposing national-level solutions covering the whole Data Life-Cycle Management (DLCM) to the research community. By identifying sustainable and added value services, the DLCM project targets efficient management of research data responding to funding agencies' and publishers' requirements to ensure publication, long-term referencing and preservation of the datasets used by researchers. The range of services verifying those criteria, and on which viable business models exist, has been identified in the course of the Phase 1 for being further developed during the Phase 2.

The mutualisation effort initiated in 2015 by the eight DLCM partners will be pursued in Phase 2. However, the splitting scenario mentioned by the P5 experts<sup>1</sup> has been favoured, as it better clarifies the roles of the different Swiss actors. According to this scenario, the DLCM project carries on the role of binder of all satellite initiatives, acting as a middle layer between the datacentres and the solution providers in order to offer a single point of contact to the research community.

The project partnership comprises different degrees of participation:

1. HES-SO and UNIGE as shareholders committed to financially contribute to the development of the Professional and Research Data Management services
2. ZHAW, a new DLCM partner, financially committed to run pilots and to be an early adopter of the new services (and thus a contributor to the development of these services)
3. EPFL and ETHZ libraries, participating as experts in the future national DLCM Coordination desk to dispense their expertise to researchers
4. SWITCH, UNIBAS, ETHZ (and EPFL indirectly, through the investment of a private company), who are submitting individual proposals to the February 2018 call, and whose services/products will be integrated to the DLCM infrastructure.

In the service selection process, two main ranges of services were retained:

#### 1. RESEARCH DATA REPOSITORY

Research Data Management services include access to a FAIR<sup>2</sup> Swiss data repository built on an OAIS<sup>3</sup> compliant data storage, with flexible options in number of copies and preservation duration. These services come in combination with existing internal solutions and/or commercial products, to answer in an optimal way customers' needs for documenting, maintaining and making the data collected in the course of research works accessible.

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<sup>1</sup> [...] DLCM is encouraged to discuss the pros and cons of one integral versus independent proposals [...]. Hearing at expert group, Zurich, November 10th, 2017

## 2. CONSULTING AND TRAINING

Professional services consist in (a) support/consulting in Research Data Management through a Coordination desk connected to a network of experts, and (b) training modules whose content will be dispensed through an established and dedicated HES-SO structure.

These services are intended to assist researchers in their everyday data life-cycle management tasks, allowing them to link datasets and associated data analysis methods to their scientific publications so as to enhance the understanding of their results. Such services also contribute to the reuse and sharing of research data, with the effect of advancing the culture of open science and reproducible research. More concretely, the main outcomes of Phase 2 are:

1. Training modules for researchers and information specialists, available in person and online;
2. A Coordination desk as a single entry point for researchers to get support, for example in the redaction of their data management plan, and to locate solutions, expertise and other useful information to improve their daily experience with research data management tasks;
3. A data repository, accessible through a Web Portal or integrated to partner solutions (e.g. ELN/LIMS systems) for depositing dataset, in conformity with SNSF and other funding agencies' (e.g. H2020) and/or publishers' (e.g., Nature, Science, Elsevier, etc.) requirements, such as publishing datasets in a FAIR repository;
4. An OAIS-compliant preservation infrastructure for securely archiving datasets on the long term.

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