swissuniversities

Program SUC 2013-2016 P-2

"Scientific information: Access, processing and safeguarding"

Application for project-related grants under the terms of the HEdA 2017–2020

Shortened, slightly adapted version.

June 2016 (reporting date is December 31, 2015)

The present application is for the continuation of the program in the years 2017 to 2020. It was approved by the Higher Education Council of the Swiss Conference of Higher Education Institutions (SCHEI) on May 26.

This document is available in German, and in French and English translations.

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Summary

The program “Scientific information: Access, processing and safeguarding” (SUC P-2) is developing national solutions in the field of digital scientific information. It is establishing a network of services for the Swiss scientific community that allows easy access to publications and data and provides tools for processing and safeguarding them. It links together the services provided by libraries, IT services and scientific IT to form the foundation for Science 2.0 and Open Science. A national governance organization covering all the Swiss universities, which includes a service platform, is being established to ensure the long-term operation of the services, the administration of the services and access to them.

The program is intended to be continued without a break in the years 2017 to 2020 under the new number PgB5. In 2014, SUC P-2 presented a National Strategy with the following key areas of focus: Publications, eScience, Basis and Services. The portfolio of projects and the program organization need to be developed further in their current direction and consolidated with regard to related schemes. The implementation actions will be reviewed and prioritized in 2016. The Program Management has submitted an application for funding of CHF 30 million to swissuniversities for the attention of the Swiss Conference of Higher Education Institutions (SCHEI), for the uninterrupted continuation of the program from 2017 to 2020.

The program meets a clearly stated need of the universities under the terms of Art. 59 of the HEdA. The ex-ante evaluation of the projects submitted by the Swiss universities for the grant period 2017 to 2020 confirms that the scheme has the highest system relevance.

All universities (the Swiss Federal Institutes of Technology and the cantonal universities), all the public universities of applied sciences (UASs) and all the universities of teacher education can take part in the program with their own projects. In addition, university libraries, research institutions in the domain of the Swiss Federal Institutes of Technology (ETH domain), SWITCH and other non-commercial research-related bodies such as FORS, FMI, Vital-IT, etc., are entitled to submit applications under the terms of the HEdA.

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1 Program status

1.1 Positioning

The foundations of the current program are the National Strategy ("Combining Efforts to Manage Scientific Information," approved by the SUC on April 3, 2014), the implementation strategy ("White Paper for a Swiss Information Provisioning and Processing Infrastructure 2020") and the current portfolio of projects. By the end of 2015, the program has already funded 19 projects in its four key areas of focus: Publications, eScience, Basis and Services. The program organization forms the basis for a national governance.[1]

The National Strategy summarizes the program's objective as follows: "The P-2 program funds the development of national solutions in the area of digital scientific information. It aims to build up a service network for the Swiss scientific community that enables easy access to publications and data and, at the same time, provides tools for processing and safeguarding them."[2] **The aim of "combining efforts" will be the emergence of synergies and gains in efficiency that will put limits on the significant cost increases in the field of scientific information and improve the competitiveness of Switzerland as one of the world leaders in the fields of education and research.** In future, a recognized organization with the ability to take action will guarantee the long-term operation of the service network.[3]

SUC P-2 was given the task of consolidating the achievements of the preceding projects AAA/SWITCH (https://projects.switch.ch/aaa/) and E-lib.ch (http://www.e-lib.ch) and developing them further. As well as presenting a strategy, the program also had to revise the processes and documents used to call for project proposals and to evaluate the projects. By establishing a program organization which is directly under the auspices of CRUS (the Rectors' Conference of the Swiss Universities, now swissuniversities), the aim is to position "scientific information" as an overarching theme for the libraries and IT service providers (IT services, SWITCH, scientific IT).

The program is developing the infrastructure and service providers to support Science 2.0 and Open Science in Switzerland. In the ex-ante evaluation, the project outline for the continuation of the program from 2017 to 2020 received the highest number of points for system relevance. This is clearly supported by benefits in the form of international competitiveness, the generation of additional management information, and meeting greater societal needs.[4] The scheme meets a requirement expressed by the universities and is rated as a task of importance for university policy throughout Switzerland under the terms of Art. 59 of the HEdA. It funds the formation of competence centers and, in the medium-term, will allow the portfolio of services to be rationalized.

1.2 Project portfolio

The development of the strategy, its consistent application in the selection of projects and its consolidation have taken around two years. Only five of the 42 applications submitted during the first round in April 2014 were approved. However, the success rate after four project evaluations is currently around 30%. In order not to hold back the progress of the scheme, projects lasting until 2018 have been accepted since 2015, following discussions with the State Secretariat for Education, Research and Innovation (SERI). The Steering Committee also decided to specify two submission dates for 2016 in order to guarantee continuity and make planning easier for applicants.[5] By the end of

[1] The documents are available on the program's website (www.swissuniversities.ch/isci) in digital form and in several languages. See also the current projects listed there.
[2] National Strategy, section 1.2.
[3] National Strategy, section 1.5.
[4] Schenker-Wicki (2015), "Projektgebundene Beiträge nach HFKG, Ex-ante-Evaluation der von den Schweizerischen Hochschulen eingegebenen Projekte für die Beitragsperiode 2017–2020," p. 13 (internal document).
[5] On the assumption that the program will continue, those parts of the projects which will take place after the end of 2016 have been approved. This means that the corresponding finances have been shifted to the 2017 to 2020 phase.

2015, SUC P-2 had supported 19 projects, three of which have already been completed.[6] The foundations for the gradual consolidation of the service clusters were only laid in the summer of 2015. According to the National Strategy, an initial portfolio of national services is to be created for the future service network by the end of 2016.[7] The development work is continuing according to plan.

The following example demonstrates the successful networking and coordination of services. The "Data Lifecycle Management" (DLCM) project is establishing best practices and tools for administering and obtaining research data. The eScience Coordination Team (eSCT) makes use of this knowledge and provides support on IT issues for researchers across organizational boundaries using local university services, but also cloud services developed and made available by the SWITCH projects SCALE and SCALE-UP and the Nel-CH project. Train2Dacar is developing training modules and courses for research data management, while Pilot-ORD@CH has established a beta platform for metadata (www.openresearchdata.ch) which completes the range of research data management services on offer.

SUC P-2 has already succeeded in networking the service providers at universities (libraries, IT services and scientific IT) and creating major collaborations between them. Half of all universities (including ETH Zurich and EPFL) and two of the seven universities of applied sciences are managing one or more projects. All the universities, ETH, EPFL and six of the seven universities of applied sciences are involved in projects. The current project portfolio lays the foundations for developing the governance in the form of a "recognized organization with the ability to take action and an online service platform that meets users' needs" in accordance with the mandate. The National Strategy states that this should "ensure its long-term operation, the management of services, access to these services from 2017 through service agreements and a clear legal basis."[8] However, further time will be needed to achieve this objective.

1.3 Operating model (national organization)

The foundations for a future operating model were laid for the White Paper.[9] The joint use of national services that are offered in a decentralized fashion by universities and university-related institutions requires a change in attitude. "**The universities must be ready to participate in a new 'market' as both providers and users**."[10]

As the requirements for their participation in services differ significantly for the three types of educational institutions – universities, universities of applied sciences and universities of teacher education – the major challenge will be to find a relevant business model and a legal form. The future governance must support the dynamic planning and financing of services across all the universities.

The national organization, which will play a coordinating role and will not function as a service provider itself, is in a complementary relationship with service providers such as SWITCH and the Swiss Academy of Humanities and Social Sciences (SAHS). This relationship needs to be clarified,[11] as does the relationship with the Swiss National Science Foundation (SNSF). As part of its mandate, the SNSF funds infrastructures for scientific information from the perspective of scientific quality and relevance. Until now, the relevance of the infrastructure components of the funded projects with regard to national coherence has been a background issue. The rationalization of portfolios, such as those carried out in the field of humanities infrastructures by the SNSF and SAHS, must be continued. **If the national organization is to contribute to the process of portfolio rationalization at the universities in the field of scientific information, this requirement must also be taken into consideration on the level of university planning**.

The specific work on establishing a national governance organization begins in 2016 and can only succeed with the support and involvement of the management bodies (the Steering Committee, swissuniversities, SUC, SERI), the partners and stakeholders. This also applies to the establishment

[6] The SWITCH projects SCALE and Swiss edu-ID (phase 1) are in the initial operating phase with pilot customers. The SYMPHONY project has presented its requirements analysis for recording the publication behavior of researchers in Switzerland and submitted an application for implementation in August 2015.
[7] National Strategy, section 1.5.
[8] National Strategy, section 1.5.
[9] White Paper, section 4.7.
[10] White Paper, section 5.4.
[11] See also the ex-ante evaluation, p. 14.

of agreements (policies), which must be supported jointly by the universities. The example of Open Access shows that cooperative implementation actions, such as those provided for in SUC P-2, can only take effect if the universities' initiatives to develop the scientific publication system in the direction of Open Access are coordinated. **The program and the resulting organization can be used to support cooperative transformation processes of this kind, and to finance implementation projects.**

2 Further development of the program objectives

2.1 Reviewing the implementation strategy in 2016

During the course of the program, 2016 is the earliest time at which the project portfolio can be reviewed and the implementation actions amended for the continuation of the program during the second phase from 2017 to 2020. As in 2013/2014, the stakeholders should be included in this step and the budget should be taken into consideration.

The plan for 2016 also includes considering two issues relating to the consultation procedure for the White Paper in January 2014: resolving the interfaces with the Swiss Roadmap for Research Infrastructures (positioning the program) and ensuring that universities can easily plan the initiatives that have been funded (sustainability).[12] A look at the roadmap for 2015 and previous experiences from SUC P-2 show that the first step must involve consultation with SWITCH and the SAHS/University of Basel.[13] Because swissuniversities canceled the project-related grants to roadmap schemes in December 2015, the continuation of the program will be an important tool for supporting roadmap schemes where there are points of contact. In relation to the ease of the planning process, in 2016 the universities should be required to put on the negotiating table their own schemes for 2017 to 2020 which correspond with the project strategy. We hope that the first joint investments will be possible.

The result of this is that the main planning components for the continuation of the program from 2017 to 2020 will only be produced during the course of 2016.

The starting point consists of the implementation actions in the four strategic key areas of focus: Publications, eScience, Basis, and Services. A simplified version of the content of these areas is shown in Figure 1.

[12] Report on the consultation procedure, pp. 32-33.

[13] Swiss Roadmap for Research Infrastructures 2015 with regard to the Federal Council Dispatch on Education, Research and Innovation 2017–2020, p. 18. See point 7 (The Swiss edu-ID and the Swiss Academic Cloud based on the Academic Network SWITCHlan) and point 8 (Swiss Digital Humanities Center).

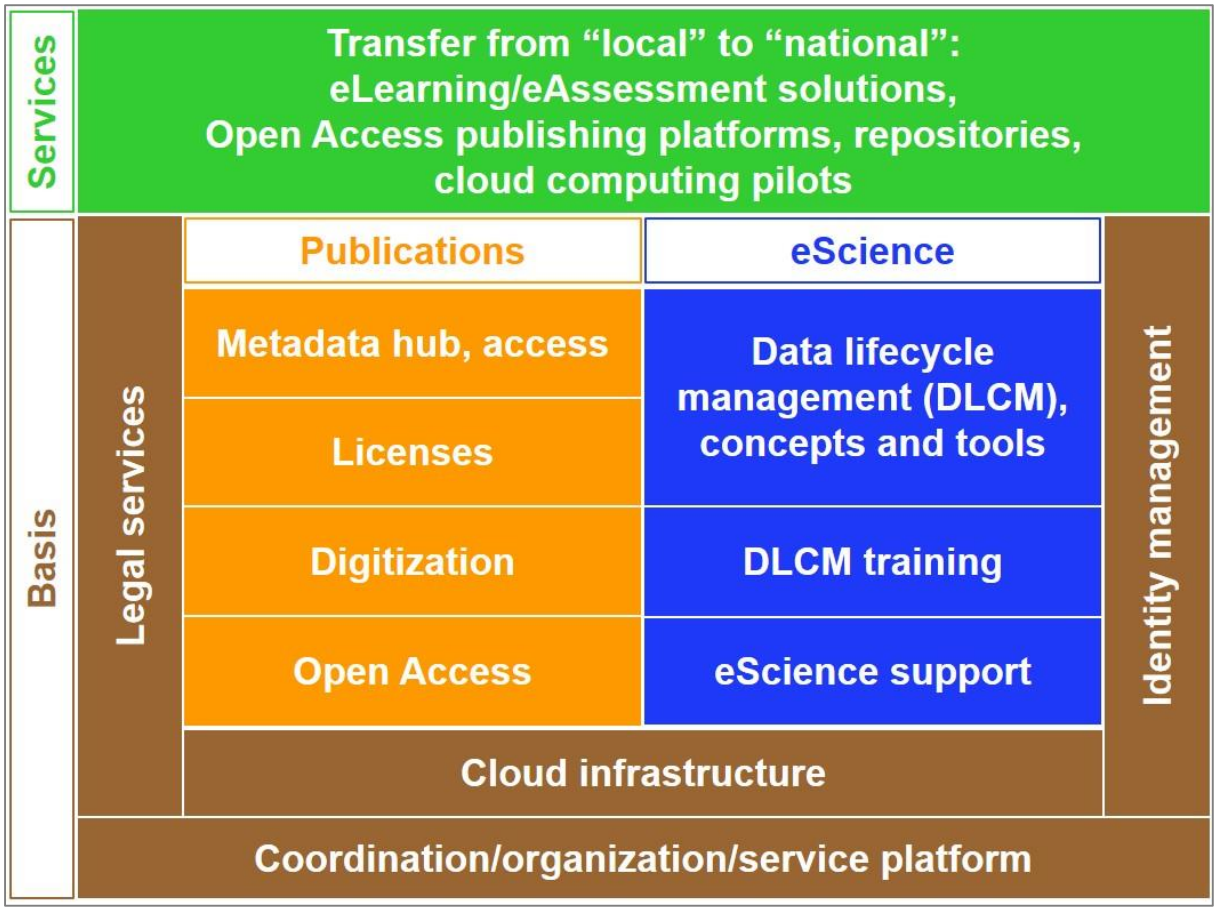

Figure 1: Key areas of focus and content of SUC P-2.

Currently, 39 implementation actions have been issued for the submission of project applications.[14] During the strategy process for SUC P-2, the matrix shown in Figure 2 was drawn up to allow the progress of the program to be tracked:

[14] White Paper, section 5.3.

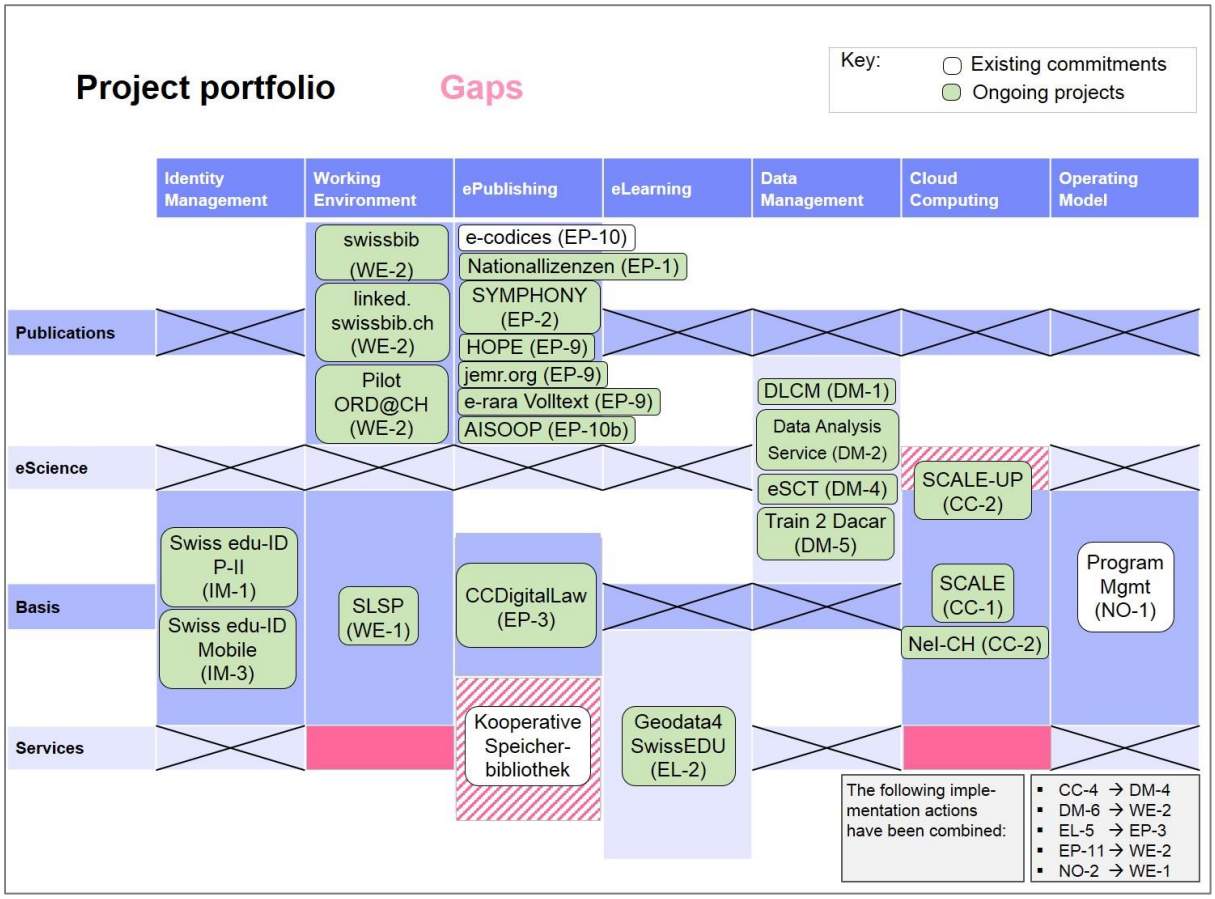

Figure 2: Project matrix (as of December 31, 2015).

The matrix assigns the approved projects on the x axis to the fields of activity described in the program application for SUC P-2. The y axis shows to which of the four key focus areas of the National Strategy the schemes belong.

The red fields represent the strategic areas where no services are currently being funded. When assessing the gaps and the successes, the time axis must be taken into consideration. Some implementation actions (for example, support for cloud services in the area of eScience) are based on preliminary work that is still under development. Where fields contain several items, this does not necessarily mean that there is no further need for action, because each of the strategic fields has a different number of implementation actions. An analysis of the strategic gaps in 2016 forms the basis for the continuation of the program.

The key areas of focus and their main implementation actions are described in detail in the National Strategy (sections 2.5 to 2.8). The catalog of implementation actions will be reviewed in 2016 and adjusted in line with the status of the program.

A complete list of the services and projects that have been funded can be found on the program website (www.swissuniversities.ch/isci --> laufende Projekte).

2.2 Key area of focus: Publications

Drivers and trends for ongoing development:

- Conversion of the scientific publication market to Open Access.
- Transfer of analog publications to digital working environments.

Cooperative services for licensing, digitization, and Open Access are being funded, together with search services to make finding and using publications and research data easier. The result should be a basic, nationwide, freely accessible electronic offering of scientific publications.

2.2.1 Collective licensing

From 2017 onwards, the Consortium of Swiss Academic Libraries intends to make use of its experience from the national licenses project to enter into innovative contracts. The solution for long-term archiving is to be expanded and, most importantly, the consortium should have a permanent organization from 2018 onwards. The consortium, which negotiated licenses worth CHF 28 million for the university libraries in 2014, is still a project organization. ETH Zurich is pushing for a change in its legal form.[15]

The national licenses project underwent an in-depth evaluation involving a team of experts. The consortium was given the mandate to link license agreements with the negotiation of current content licenses in order to obtain added value in the form of Open Access clauses or hybrid compensation for current content. The project has broad support in the libraries and involves foreign expertise. A relevant concern in the context of a nationwide strategy for Open Access is the introduction of article processing charges for Gold Open Access into the current content contracts.

The project and the consortium are the key to managing the upheavals in the world of scientific publications. If the main partners in the consortium support a more powerful consortium which has the ability to negotiate collectively with large scientific publishing houses, the imminent transformation of the market, including budget negotiations within universities, can be implemented in Switzerland too. Supply and cost in the system of scientific publications should gradually be brought into line[16] (see also the next section on Open Access).

2.2.2 Open Access

The need for Switzerland to become involved in the increasingly coordinated international initiatives for Open Access is growing more urgent. As part of the efforts to introduce Open Science, Open Access is now on the European Union agenda.[17] Involvement will in future require joint initiatives by the Swiss universities.

Against this background, the SERI, the SNSF and swissuniversities/SUC P-2 met on November 4, 2015 to discuss the measures needed for a national approach to Open Access. The starting point consisted of the following lines of action:

1. Negotiation on a national level (licenses)
2. Marketing transparency (disclosure of finances and payments)
3. Right of secondary publication
4. Monitoring OA publications and their funding
5. Sensitization and information for researchers

In a letter dated December 4, 2015, the State Secretary of the SERI called on swissuniversities, with the involvement of the SNSF, "to take overall responsibility for developing a nationwide strategy for Open Access." He identified the following areas where action is needed:

1. Targeted funding for Open Access as an overall objective.
2. Creating cost transparency with regard to public spending in the field of scientific publishing (financial analysis).

[15] The consortium and the licensing of current content were initiated between 2000 and 2006 with federal funding.
[16] European Commission, joint statement, Carlos Moedas and Sander Dekker, October 12, 2015 (https://ec.europa.eu/commission/2014-2019/moedas/announcements/commissioner-moedas-and-secretary-statedekker-call-scientific-publishers-adapt-their-business_en).
[17] Digital Agenda for Europe: Open Science (http://ec.europa.eu/digital-agenda/en/open-science).

3. Coordination of the activities of stakeholders on the part of the universities, with the involvement of the university libraries.

SUC P-2 offers the universities several implementation actions for funding Open Access, for example support for Gold Open Access initiatives and sharing repositories.[18] However, past experience has shown that Switzerland is still lacking the necessary bodies to support a joint approach and joint infrastructures.[19] The nationwide strategy is in a position to lay the foundations for this. The role of the program is to launch specific implementation projects in the period from 2017 to 2020.

In order to introduce the required cost transparency, the SNSF, with the support of SUC P-2, is currently carrying out a financial analysis of the scientific publication system in Switzerland with scenarios for a conversion to Open Access. The analysis should be available at the end of 2016, at around the same time as the nationwide strategy.

2.2.3 Digitization

In March 2015, the Steering Committee of SUC P-2 adopted a dedicated strategy document for the digitization implementation area.[20] It spells out the desire for a more wide-ranging participation of memory institutions and for research on the platforms established as part of E-lib.ch. The aim is to fund the implementation of standards (technical standards and metadata), the improvement of interoperability and the development of tools for research. In future, a competence center will be available to advise researchers. A fund for financing retro-digitization schemes could enable research funding institutions and service providers to decide jointly on retro-digitization schemes "of national relevance." Another requirement is the funding of retro-digitization in the context of edition projects. In 2016, the Program Management will attempt to find a solution to this in consultation with the SNSF, the SAHS and the memory institutions.

The strategy document was drawn up at the same time as the SNSF's call for editions and the SAHS/University of Basel pilot project to set up a Data and Service Center for the Humanities (DaSCH).[21] The exchange of information with these schemes clearly highlighted the requirements for digitization in the field of the digital humanities. The program will fund projects which make digital objects from the collections of libraries and archives accessible to the working environments of the humanities. The initial edition projects at the Universities of Zurich and Basel that aim to build on this foundation are in the preparation stage (see also section 3.2.3).

2.2.4 Search solutions/metadata hubs

SUC P-2 is funding the ongoing development of a metadata hub with a search solution for publications (swissbib, linked.swissbib) and the establishment of a hub for research data (Pilot ORD@CH). Both services need to be developed further. While swissbib is moving towards consolidation with the Swiss Library Platform (SLSP) project, the hub for research data will have to demonstrate its competitiveness in comparison with international projects. Both projects are actively networking with projects in other areas. For example, swissbib has taken responsibility for the metadata work package in the national licenses project.

[18] Most universities of applied sciences do not currently have a repository. They could benefit from the experience of other universities and start collaborative projects.
[19] Presentation by the Program Management at the Open Access Days 2015 on September 7: https://openaccess.net/fileadmin/oat/oat15/slides/06-Schneider-Gabi-neu-OpenAccessTage_SUK_P-2_Sept7.pdf.
[20] "Hauptstossrichtung Publikationen, Umsetzungsmassnahme EP-10, Digitalisierung: angepasste Strategie und Umsetzungsmassnahmen" dated March 31, 2015.
[21] http://www.sagw.ch/sagw/laufende-projekte/DaSCH.html.

2.3 Key area of focus: eScience

Drivers and trends for ongoing development:
- Big data
- Cloud computing
- Digital humanities

The projects that are being funded support the lifecycle management of research data (standardized processes for access, processing, reuse, and archiving). Support services help researchers to scale their methods and their expertise to match the available computing power.

The initiatives are being supported and reinforced in relation to national research infrastructures (RIS), such as the Initiative for Data Science in Switzerland (IDSS) from the ETH domain or the Data and Service Center for the Humanities (DaSCH), and in relation to international initiatives.

2.3.1 Data Lifecycle Management (DLCM)

In the large-scale SUC P-2 Data Lifecycle Management (DLCM) project,[22] a wide range of bodies is drawing up concepts and sample solutions for the entire lifecycle of research data in different disciplines. The partners in the project are EPFL/ETH Zurich, the Universities of Geneva, Lausanne, Basel and Zurich, the Geneva School of Business Administration (HEG), the Western Switzerland University of Applied Sciences and Arts (HES-SO), and SWITCH. They are developing content in an area covering Western and German-speaking Switzerland, the humanities, sciences, IT services, scientific IT, and libraries.

The figure below (Figure 3) shows the work packages and content of these projects.

[22] Project website: http://www.dlcm.ch/.

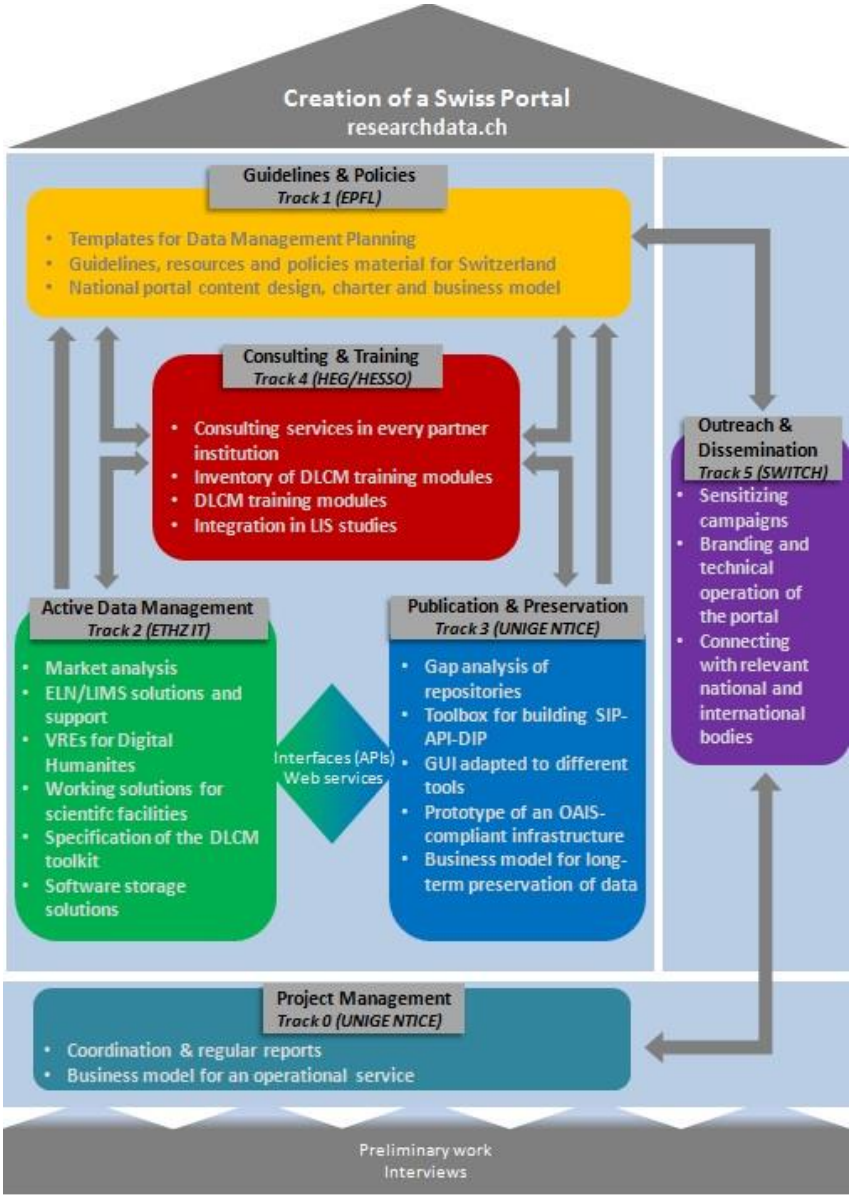

Figure 3: Data Lifecycle Management (DLCM) project: work packages and content.

Between 2017 and 2020, the scientific information program will support the ongoing development of local established services based on the concepts that have been created, with the aim of making these available throughout Switzerland. Data management services, local tools and expertise in the field of eScience will be offered to a larger research community. Pilot projects will be funded which are able to take responsibility for these.

2.3.2 Training and eScience support

A shorter time to a solution is the idea at the heart of the SUC P-2 project known as eScience Coordination Team (eSCT).[23] The scientific IT teams from EPFL/ETH Zurich, HES-SO, the Swiss Institute of Bioinformatics (SIB), the University of Basel (and the FMI) and the University of Zurich are developing a support service for researchers. The contact centers are making available the expert knowledge, methods and tools of the leading universities (for example on processing large volumes of data) to small teams across Switzerland. The project bridges the gap between research, scientific IT and IT services. Establishing cooperation with local IT service teams is part of the project.

[23] Project website: http://www.science-it.ch/

At the end of 2016, the SUC P-2 project Train2Dacar will have tested and consolidated its training modules. This training has been developed at the universities of applied sciences and allows employees in libraries and IT services teams to learn additional skills in data management support. The project aims to support the development of similar training courses.

2.3.3 Digital humanities

The Digital Humanities Lab at the University of Basel, which is responsible for the Data and Service Center for the Humanities (DaSCH) pilot project, is also involved in several other SUC P-2 projects. The planned projects in the field of editions are based on the existence of the DaSCH. In the light of probable future cuts, the program will help to support the core features of this project, which is central to the field of the humanities.[24] In consultation with SERI, swissuniversities, the SAHS, the SNSF and the participating Universities of Basel, Bern and Lausanne, efforts will be made to identify how the funds still available can best be supplemented.

2.4 Key area of focus: Basis

Drivers and trends for ongoing development:

- Mobility in research and teaching
- Identity management and legal certainty in digital environments
- New organizational forms for service providers to manage the digital evolution
- Cloud computing

The technical and organizational foundations for the cooperation between libraries, IT services and scientific IT must be established and adapted in order for the program to establish strong roots.

2.4.1 Identity Management (SWITCHaai "new generation")

During the course of 2016, Swiss edu-ID, which has been developed by SWITCH, will be ready for connection to the local identity management services of the universities and their resources. Between 2017 and 2020, the program will fund projects from the research infrastructure scheme "The Swiss edu-ID and the Swiss Academic Cloud based on the Academic Network SWITCHlan." The Swiss Roadmap for Research Infrastructures has assigned the implementation of this scheme to the next stage of SUC P-2.[25]

2.4.2 National service platforms

By 2018, the program will provide a service platform for administering and publicizing the services that have been developed. It will aim to provide the universities with a transparent basis for planning. The development of this platform will depend on the progress made by the various projects. It will be developed gradually and in accordance with requirements.

The design phase for the SUC P-2 Swiss Library Service Platform (SLSP) project will continue until February 2017. The withdrawal of the canton of Vaud from the Library Network of Western Switzerland (RERO) and the fact that the integrated library systems of the large university libraries are reaching the end of their lifecycle have led to the launch of a broad-based initiative to establish a new technical and organizational foundation for the Swiss library networks. The costs of restructuring local operations will be borne by the bodies responsible, but projects will be funded which will lead to a joint solution and a new basis for the university library services. Funded projects such as the Consortium of Swiss Academic Libraries (licenses), Open Access repositories and digitization platforms fall within the organizational integration area of the SLSP.

[24] Cancellation of the grants from swissuniversities to the roadmap projects, cutting the operating grant to the DaSCH from the proposed CHF 1 million to CHF 500,000 for the period from 2017 to 2020.
[25] Swiss Roadmap for Research Infrastructures 2015 in View of the ERI Dispatch 2017–2020, p. 18, footnote 34.

2.4.3 Copyright and data law

Digitization is changing the legal basis of research and teaching. In December 2015, the Steering Committee of SUC P-2 approved a project to establish a competence center for digital law (CC Digital Law) under the leadership of the Università della Svizzera italiana (USI). A preliminary project which involved consultation with the legal departments of the universities established nationwide cooperation and a link to the digital law working group of SWITCH. The initial phase of the project (until June 2017) will focus on developing training modules in the fields of copyright (rights, licenses, Open Access) and identifying a sustainable business model. In the next phase, the field of data law will be added to the project.

2.4.4 Cloud infrastructure

The development of the SWITCH cloud offering was planned as part of the SWITCH Academic Cloud research infrastructure submission (see chap. 2.4.1). The implementation was assigned to the continuation phase of SUC P-2. The SUC P-2 SCALE and SCALE-UP projects have already established the foundations for this. SCALE-UP aims to provide a series of easy-to-use tools (apps) for research and teaching. The planning for the years 2017 to 2020 will be coordinated with SWITCH during 2016.

2.5 Key area of focus: Services

Drivers and trends for ongoing development:

- Efficiency gains from the provision and maintenance of services
- Mobility in research and teaching

In order to establish incentives for cooperative services and tools, the program supports opening up the universities' local solutions to other partners. The additional costs of opening up the services and the costs incurred by new university partners in joining these solutions will be funded.

2.5.1 Expansion as a horizontal principle

The aim of the approach described in section 2.5 is primarily to bring about increased use of e-learning tools in SUC P-2. In the subsequent project, the goal is to fund joint solutions developed by the universities on the basis of a horizontal principle in all strategic areas. The success of this approach requires the support of swissuniversities.

One example of this approach is the SUC P-2 Geodata4SwissEDU project. The objective is to provide an efficient service for finding, accessing, presenting, downloading and processing geoinformation for education and research purposes at Swiss universities. This project brings together local schemes run by ETH Zurich and the University of Applied Sciences Rapperswil (HSR).

2.6 Operating model (national organization)

Drivers and trends for ongoing development:
- Cooperation across universities in high-cost areas
- International competitiveness of the Swiss university sector
- Open Science/Citizen Science

The National Strategy for SUC P-2 describes the program organization as the starting point for the establishment of a long-term, streamlined and credible coordination body.[26] The existing organization (see section 4) will be gradually adapted to the status of the program. The establishment of the initial project portfolio lays the foundations for starting the development of an operating model in 2016. An implementation plan will be put in place by 2018 to form the basis for the Federal Council Dispatch on Education, Research and Innovation 2021–2024.

2.6.1 Development of the program organization

Depending on the situation in 2016, it is reasonable to assume that changes will be made in the following areas from 2017:

- Submission process: Increasing the flexibility of the process (adding calls on specific subjects to the regular submission deadlines for projects).
- Evaluation: Making the expert group more flexible (for example, assessing projects in subject clusters). The experts will also play an increasing role in the quality assurance process for the services that have been introduced.
- Expansion of project management: Monitoring, managing horizontal themes (for example Open Access, Open Data, service standards), introducing a feedback process for ongoing projects (audits, workshops, customer feedback), international networking.
- Communication: Diversification of communication by target group, enhancing the web presence.
- Preparing management information: Restricting and quantifying the "high-cost areas."

The program organization will intensify its strategic cooperation with its stakeholders. Efforts have been underway since 2015 to transform the organizations of the IT services (ASIUS and the former FID at the universities of applied sciences) and the library organizations (KUB-CBU – the Conference of Swiss University Libraries – and the libraries of the universities of applied sciences) into swissuniversities networks. The KUB-CBU established an Open Access working group (AK-OA) in 2015. The Consortium of Swiss Academic Libraries has announced that it intends to evaluate the business model as part of the process of finding a stable form of organization. The program will make use of these developments to identify specific requirements for the future operating model (see section 2.6.2).

One initial example is the cooperation with the SNSF on the mandate to carry out a financial analysis of the scientific publication system in Switzerland. In 2016, SUC P-2 will pay 50% of the costs of the analysis and of a scientific internship at the SNSF. This will support the service provider, which is likely to come from outside Switzerland. The mandate involves drawing up management information which will be used by the SERI, the SNSF and swissuniversities as the basis for the nationwide Open Access strategy. The funding will help to develop a cooperative network among the universities. The next step involves making a decision as to how the operating model can support the transformation process.

[26] National Strategy, sections 1.5 and 4.

2.6.2 National organization

The planned permanent organization will be a streamlined coordination body which manages the service catalog, monitors compliance with the agreements, defines guidelines and interfaces and coordinates the use of the financial resources.[27]

The fundamental characteristics of the national organization were defined in 2013 for the White Paper.[28] In 2016, an external service provider will be brought in to develop the operating model. The service provider will help the Program Management to develop a participatory process and will facilitate this process. This will involve analyzing the following: the legal framework; the position of the new organization in relation to funding organizations; and the project-related service landscape at the Swiss universities. The needs of the different stakeholders will be identified and the possible options discussed. A broad-based implementation plan will be put in place by 2018 for the Federal Council Dispatch on Education, Research and Innovation on Education, Research and Innovation 2021–2024.

The following components will be developed:

- Model: Service network with different service providers and different business models (individual billing to a person or an organization, funding shared by organizations, consortia, sponsoring, government funding).
- Cohesion: Service portal for accessing the services with SLAs and a self-service option.
- Governance: Policy committees (at the SUC, SERI level), Steering Committee (at the university administration/swissuniversities level). The aim is to consolidate the management boards set up as part of the projects and to network with other service providers such as SWITCH.
- Operation: Management of the coordination body with a focus on the following areas: Communication, links to university administrations and public bodies, management of the service portal, drivers for the implementation of policies, international contacts.

2.6.3 Service platform

The characteristics of the platform for the services will be defined as part of the process of developing an operating model (see section 2.4.2).

3 Objectives and success factors

In March 2014, SUC P-2 published a detailed assessment of the consultation process on the White Paper, which selected stakeholders were invited to take part in. Six critical success factors were identified on the basis of the views of the stakeholders:[29]

1. Customer benefit
2. Cooperation
3. Positioning
4. Sustainability
5. Governance
6. Communication

The requirements identified at the time will act as a template for formulating measurable targets in order to be able to evaluate the success of the program. It will be possible to carry out a qualitative assessment of the extent to which the perception of the stakeholders who were surveyed has changed at specific times during the course of the program.

[27] National Strategy, section 4.
[28] White Paper, section 4.7 and the implementation actions NO-1, WE-1 and NO-1 in the table of implementation actions, section 5.3.
[29] Report on the consultation procedure. For a detailed assessment of the opinions on the critical success factors, see pp. 31–34.

3.1 Customer benefit: "Clear added value which is quickly noticeable"

The stakeholders' requirements:

- "User friendly applications that are ready to use" and that provide benefits
- Customer-focused development ("science-/education-driven")
- The services must take specialist disciplines and language groups into consideration
- The development must be driven by the business and not by IT
- The services must be easy to access
- The services must be of high quality
- The benefits of the services must be quantifiable

Measurable targets:
A range of services is on offer across university boundaries, available to all Swiss universities. There are service level agreements (SLAs) for these services with parameters that take into consideration the specified requirements. The business case and the quality are weighted more heavily than the representation of all specialist disciplines. The different customer groups for these services have been defined and involved in the development of the services. There are initial customers. The services are publicized at suitable locations for each customer group (service platform and points of service).

3.2 Cooperation: "Involvement of partners on all levels"

The stakeholders' requirements:

- IT services and libraries should work closely together
- SWITCH, the Consortium of Swiss Academic Libraries and the archives must be involved
- The development of unnecessary independent solutions should be avoided by taking commercial service providers into consideration
- The specialist disciplines must drive the process
- The services (infrastructures and content) must be open to customers outside the universities

Measurable targets:
In the program's clusters (for example the DLCM and the SLSP), the libraries, IT services and scientific IT are collaborating closely with one another. Horizontal services such as Swiss edu-ID (identity management), cloud services and the eScience Coordination Team (eSCT) have libraries among their customers. There are data management training courses on offer which are equally interesting to libraries and IT service providers. Projects that include independent developments will be assessed as part of the evaluation and audit procedure to determine whether they are fit for purpose.[30] The legal issues relating to universities offering services across university boundaries have been resolved.

3.3 Positioning: "Clarifying the research policy objective and the political support"

The stakeholders' requirements:

- The program must be recognized as being a research infrastructure
- The program must support the rationalization of the portfolio as part of the Swiss Roadmap for Research Infrastructures
- A distinction must be possible between (basic) national infrastructure and infrastructure projects for specific disciplines
- The program must take into consideration and support the links to international initiatives
- The program must be supported by the Swiss Confederation, the cantons and the universities

Measurable targets:
The program will be included in the consultation process for the creation of the next Swiss Roadmap for Research Infrastructures. The effect of the portfolio rationalization process can be demonstrated

[30] The SUC P-2 evaluation procedure already takes this factor into consideration.

using initial examples (for example Digital Humanities/SAHS). The program plays a role in the assessment of infrastructure-related projects funded by the SNSF. The role of the Program Management in networking with international schemes can be demonstrated by means of examples (for example, the LERU Roadmap for Research Data).

3.4 Sustainability: "Establishing a smoothly functioning market of service providers and customers"

The stakeholders' requirements:

- The service development process must be transparent and compatible with the planning cycles of the universities
- There must be incentives for organizations to act as national service providers (balancing risks for large universities after the start-up funding has come to an end)
- There must be incentives for organizations to be customers of national services
- It must be possible for the cooperation requirements to be met by smaller universities
- Funding instruments other than project-related grants must be available
- The program must be continued after 2016 (2016 is not a long enough period to establish the market)

Measurable targets:
Information about the development status of the services must reach the universities via the service platform and appropriate information channels. There must be an investigation, including recommendations, into the cooperation requirements and prerequisites of the three types of university. A palette of services has been successfully developed in which the benefits of cooperation outweigh the competition between the locations. The services have a long-term financing model. In the best case, a system of incentives was negotiated via swissuniversities which allows a financial balance to be achieved between universities with different prerequisites in this area. The foundations have been laid for monitoring cost increases in the target area using key performance indicators.

3.5 Governance: "Establishing a national organization with the ability to take action"

The stakeholders' requirements:

- A streamlined national organization acting as a hub must facilitate and support the development of services
- The competencies of this organization must have been clearly specified
- The affiliation to an existing organization (swissuniversities > SWITCH) must be defined
- The Program Management has change-management qualifications
- The Program Management will ensure that "important, national" projects with reliable partners and a sustainable financial framework are given priority
- The Program Management will identify gaps in the provision of services and issue targeted calls or introduce funding measures to ensure that services are developed even in complex fields of activity (from the top down)
- The management boards must be incorporated into the existing service landscape, so that no additional burden is created
- The membership of boards and the evaluation processes must be transparent and accountable

Measurable targets:
A service network in the field of digital scientific information, a reliable organization (service portfolio management) and an accepted governance have been developed successfully. The role, the mandate and the governance of SWITCH have been defined. SWITCH is included in the service network as a service provider. The relationships with other service providers (Digital Humanities Center, Vital-IT, IDSS, FORS, CSCS, etc.) have been defined and synergies have been exploited. The management

boards have been consolidated and their involvement in the boards of swissuniversities has been defined and established.

3.6 Communication: "Professional communication aimed at specific target groups"

The stakeholders' requirements:

- Communication channels designed for the recipients
- Language targeted at the recipients
- Professional marketing

Measurable targets:

The program communications are diversified. There is a communication channel via swissuniversities to the management of the universities. Services are available via the service platform or locally via the customer groups' points of service. Examples can be used to demonstrate that successes relevant to the general public have been reported on appropriate news channels. The program organization can offer advice on communication and marketing to the services that are developed as part of the program.

4 Organization and milestones

The program organization of SUC P-2 will be continued and developed into a permanent operating model (see sections 2.6.1 and 2.6.2). The current organization is described in sections 1.4 (Funding framework) and 1.5 (Program management structure) of the National Strategy and in sections 5.4 (Project applications and briefs) and 5.5 (Evaluation) of the White Paper.

Figure 4 below shows the current organization:

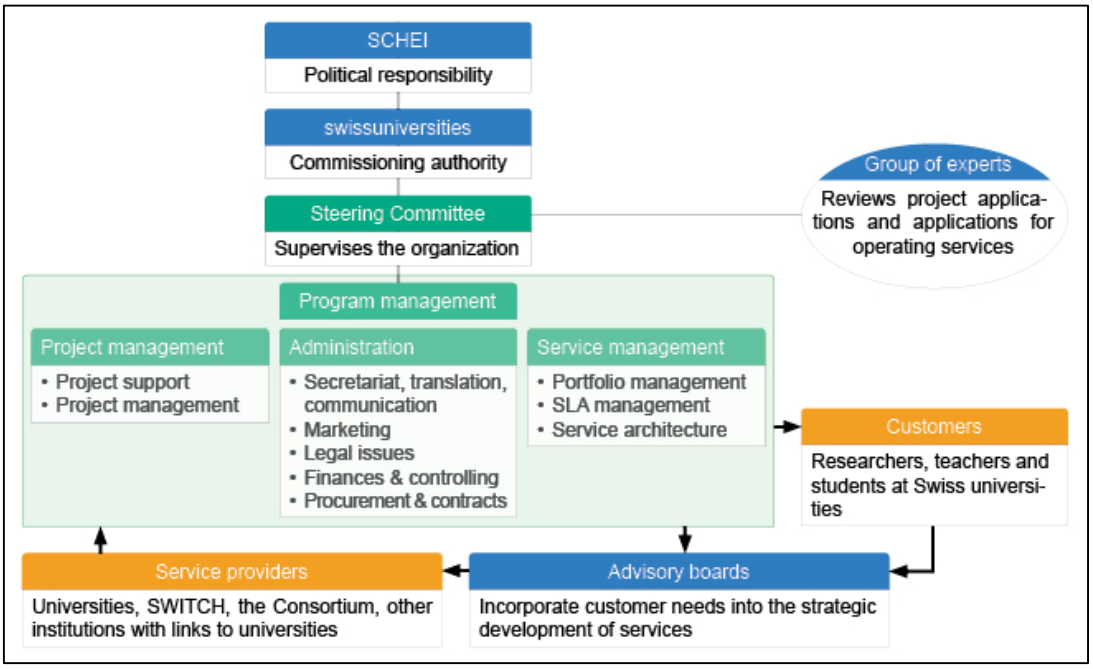

Figure 4: Program organization of SUC P-2.

The program will continue to develop on the basis of projects submitted by the institutions authorized to do so. Tenders can be invited for contracts, and contracts can be awarded for the targeted expansion of the project portfolio. At the same time, the Program Management will intensify its dialog with stakeholders and management bodies in order to identify and implement joint schemes. All projects will be subjected to an evaluation process.

In addition to acquiring and evaluating new projects, more project management work will be needed as the project portfolio increases in size (coordination, monitoring success, financial controlling, developing horizontal themes). The projects require detailed support and networking, including on an international level where this is relevant.

The projects will function independently within the framework of the approved project application and are responsible for developing independent business models. It is reasonable to assume that from 2017 onwards they will increasingly have to take into consideration the coordination and management activities of the program organization.

4.1 Milestones 2016

January 2016: Awarding of the contract for the financial analysis of the scientific publication system, together with the SNSF.

February 2016: Kick-off meeting for a national strategy for Open Access (SUC P-2 supporting swissuniversities).

March 2016: Service contract with an external service provider for process development and facilitation for the operating model (national organization).

June 2016: Joint interests, specific schemes for the period 2017 to 2020 and the need to amend the implementation strategy will be discussed in stakeholder meetings (round tables).

August 31 to September 3, 2016: At the annual congress of the National Association of Swiss Libraries (BIS), the library-related projects will be presented to a wide specialist audience.

September 28/29, 2016: The Steering Committee will decide, during the course of a retreat, on the development of the project content.

October 2016: The amended strategy documents will be available.

December 31, 2016: Completion of several SUC P-2 projects.

4.2 Milestones 2017–2020

If the application to extend the program is approved, the following projects will continue to run according to plan:

- Swiss Library Service Platform, SLSP (until February 2017)
- SCALE-UP (until December 2017)
- Data Lifecycle Management, DLCM (until July 2018)
- CC Digital Law (until June 2017)

2017:

January 2017: The financial analysis of the scientific publication system in Switzerland (contract issued by the SNSF with SUC P-2) is available.

January 2017: The interfaces to DaSCH, which is moving into normal operation, have been determined.

February 2017 (SLSP): The design and the implementation plan for a joint library platform for Swiss university libraries are available.

June 2017 (CC Digital Law): The competence center and the web platform are in operation and functioning as a point of contact for legal questions in the field of copyright.

December 2017 (SCALE-UP): Completion of the project. The ongoing development has been agreed with SWITCH as part of the integration of the Academic Cloud research infrastructure proposal.[31]

[31] This proposal also includes the further development of Swiss Edu-ID. Projects will start in 2017 to connect the university identity management systems to Swiss Edu-ID as an attribute authority (until 2020).

December 2017: The funding body and the business model for the Consortium of Swiss Academic Libraries have been determined in agreement with the SLSP.

December 2017: Definitions and a rough calculation for the high-cost areas are available as a basis for the operating model.

2018:

February 2018: The first management report for the project organization (for 2017) with services, costs, earnings and other indicators is available.

June 2018: The service platform for the project organization goes online with its first services.

June 2018: The Program Management submits the application for the future operating model (national organization).

July 2018: The DLCM project is completed. An application for the operating phase has been submitted.

September 2018: Discussion of the operating model and national organization within the chambers of swissuniversities.

2019:

Q1/2 2019: Inclusion of the operating model and national organization in the Federal Council Dispatch on Education, Research and Innovation 2021–2024 and possibly in the new version of the SERI roadmap for research infrastructures.

End of 2020:

The service network and the national organization are in operation.

5 Sustainability of the program and the operational phase after 2020

During the course of the program, a distinction must be made between the sustainability of the projects and the sustainability of the future operating model (national organization).

5.1 Sustainability of the projects (services)

The foundations for the sustainability of the projects will be laid in the evaluation process. Applicants are responsible for developing business models and have to demonstrate how the operation of the proposed services, including information services, can be guaranteed after the end of the project. This aspect will be given high priority during the evaluation.

The projects which are most likely to be successful (or to succeed most quickly) are those where services are assigned to an established service provider. This applies to services provided by SWITCH (Swiss edu-ID, SCALE) and the Swiss Library Service Platform (SLSP). The SLSP has the potential to take responsibility for funded projects in the key area of focus of Publications in particular (for example, the Consortium of Swiss Academic Libraries, digitization platforms).

5.2 Sustainability of the operating model (national organization)

An operating model can be developed and proposed by the program. However, it will only be sustainable if the Swiss universities, swissuniversities, the SUC and the Swiss Confederation (SERI) support the scheme and become involved in the development process.

As explained in the problem analysis, the readiness of the universities to take part in a market for scientific information services as service providers and customers forms the basis of the success of the program. A more detailed investigation is needed of the specific prerequisites that the three types of university can offer a market of this kind (including, for example, ETH Zurich and EPFL, when compared with the cantonal universities). As the readiness of a university to provide a service for other

universities must not put it at a disadvantage in the competition between the locations, it is important to consider how the universities will pay one another for services of this kind.

In legal terms, there are three points of contact from a current perspective:

1. Federal Act on the Funding and Coordination of the Higher Education Sector (HEdA)

Art. 59 of the HEdA determines the purpose and the prerequisites for project-related grants. Para. 1 states: "Project-related grants covering a period of several years can be awarded for tasks of importance to nationwide university policy."

Project-related grants are one possible basis for the further development of the service portfolio and the expansion of the service palette.

2. SWITCH

The report on the ex-ante evaluations states that "... SWITCH should be included in the ongoing work and the role of SWITCH – as a foundation with relatively high levels of capital resources – must be clarified."[32]

The SWITCH foundation has been in existence since 1987 and today sees itself as a "neutral technology and service platform for the Swiss universities."[33]

3. Federal Act on the Promotion of Research and Innovation (RIPA)

The relevance of Article 15 (Contributions to research facilities of national importance) must be determined.[34]

Another aspect of interest is the positioning of a national organization for scientific information services in relation to Art. 10 (Swiss National Science Foundation) para. 3 point c[35] and Art. 11 (Swiss Academies of Arts and Sciences) para. 6.[36] The SNSF and the academies have been given responsibility for developing comparable infrastructures in the specialist disciplines.[37]

If it is considered that the future operating model contributes to promoting national "nodes" in an international context, the positioning of the scheme with regard to section 6 of the RIPA (International Cooperation in the Field of Research and Innovation) needs to be investigated, in particular Art. 28 para. 2 points a and b.[38]

Chapter 3 (Coordination and Planning) of the RIPA also forms the basis for action: Art. 41 para. 4 states in relation to cost-intensive research infrastructures that the Federal Council must take the required measures for the coherent coordination of the Confederation's international research and innovation support with development planning in the ETH domain and national university policy coordination and the division of tasks in particularly cost-intensive fields.

[32] Schenker-Wicki (2015), "Projektgebundene Beiträge nach HFKG, Ex-ante-Evaluation der von den Schweizerischen Hochschulen eingegebenen Projekte für die Beitragsperiode 2017–2020," p. 14 (internal document).
[33] See https://www.switch.ch/de/about/foundation
[34] For information on the research facilities that are receiving support from 2013 to 2016, see the SERI website: http://www.sbfi.admin.ch/themen/01367/01679/index.html?lang=de.
[35] Art. 10 para. 3 point c of the RIPA: Funding... "of research infrastructures which serve the development of fields of expertise in Switzerland and which are not within the remit of the higher education research centers or the Confederation."
[36] Art. 11 para. 6 of the RIPA: "They may support data collections, documentation systems, scientific journals, editions or similar institutions, which serve as useful infrastructures for the development of fields of expertise in Switzerland and which do not come under the remit of the SNSF or the higher education research centers or do not receive direct support from the Confederation."
[37] See also the SSIC publication 5/2015: "Evaluation des Schweizerischen Nationalfonds in Bezug auf die strategische Förderung von Forschungsinfrastrukturen und Fachgebieten."
[38] Art. 28 para. 2 of the RIPA, point a: "Switzerland's participation in the development and operation of international research facilities and internationally coordinated research infrastructures"; and point b: "Switzerland's participation in international programs and projects promoting research and innovation."

6 Financing

6.1 Status of SUC P-2[39]

By the end of 2015, four project evaluations had been completed. On the assumption that SUC P-2 will continue, projects which have a duration beyond the end of 2016 were approved in 2015. In order to expand the scope of negotiation for the Consortium of Swiss Academic Libraries, it has been made possible to conclude contracts for the national licenses project after 2016. So for the period from 2017 to 2020, financing commitments exist for CHF 7 million, without taking projects submitted in 2016 into consideration. For the program organization, the same funds will be budgeted as for the current program.

The table below (Figure 5) shows the distribution of program funds granted up to the end of 2015 for the current financing period and the financing period now being applied for.

Funding period	**2013 – 2016**	**2017 – 2020**
Funds available	**45.3 million**	**(30 million)**
Expenditure:		
Firm commitments Program management, transfer projects, e-codices, data storage library	10.5 million	3.5 million
Project submission (March 2014)	5.1 million	
Project submission (August 2014) incl. national licenses	15.8 million -2.6 million	2.6 million
Project submission (February 2015)	6.3 million	3.9 million
Project submission (August 2015)	0.9 million	0.5 million
Total	**35.9 million**	**7 million**
Remaining funds	9.4 million	

Figure 5: Distribution of the funds granted over the financing periods

This list shows that the funds already granted should be covered by SUC P-2 as far as possible. For this reason, a separate application has been made to be allowed to use the funds from the current funding period up to 2018.

The ratio of staff costs to material costs in SUC P-2 is 7:3. Without taking the national licenses project into consideration, 90% of the funds will be for staff costs. But because from 2017 onwards no new licensing projects are planned, we can reckon on this proportion remaining the same for the period from 2017 to 2020.

6.2 Financing requirements for projects 2017–2020

The continuation of the program will focus on developing a permanent organization, on consolidating and developing the services, and on acquiring new projects in the areas described (see section 2).

A survey of the heads of the ongoing projects identified the following finance requirements (rough estimate of the funding needed):

- For the incorporation of article processing charges (APC) into the current content licenses of the Consortium of Swiss Academic Libraries (offsetting models) in order to fund the process of transformation to Open Access: CHF 5 million
- For the establishment of an Open Access competence center and contributions to the establishment of an open repository: CHF 2.2 million

[39] Section 6.1 explains the starting situation for 2017 to 2020 and replaces the purely financial tables in the original application.

- Proposals amounting to CHF 3 million have been submitted for development and operation in the field of retro-digitization and to bridge the gap in the publication platforms for editions. Further substantial costs are expected in this area.
- The aim in the fields of research data management and eScience is to consolidate what has already been achieved and to highlight the benefits with effective pilot projects. The estimate is CHF 7.3 million.
- For the implementation of the Swiss Library Service Platform (SLSP), funding of CHF 10 million has been proposed and the transitional financing for swissbib is expected to amount to CHF 3.2 million.
- For the SWITCH Academic Cloud research infrastructure submission and, in particular, for linking Swiss edu-ID with the universities' identity management systems, a new estimate of CHF 17 million has been made.

As a result, the financing needed by the projects amounts in total to approx. CHF 47 million. There will be additional costs for the Program Management. They fall within the same range as during the period from 2013 to 2016 and will amount to approximately CHF 3.5 million.

6.3 Application

SUC P-2 has applied to the Swiss Conference of Higher Education Institutions (SCHEI) for CHF 30 million for the continuation of the program from 2017 to 2020 as part of the project-related grants for 2017 to 2020 under the terms of the HEdA.

A separate application has been submitted to be allowed to use the remaining funds of SUC P-2 to provide financing until 2018 for the projects approved subject to the aforementioned proviso (see section 6.1).

In light of this requirement, it is important to focus consistently on the areas which make the greatest impact. Priority will be given to concluding the projects that have been approved and consolidating the services that have been developed.

6.4 Matching funding from consortium licenses

In a similar way to the program's application for 2013 to 2016, the program is applying to use the spending of the Consortium of Swiss Academic Libraries on current content licenses as capital resources:

See the application for 2013 to 2016, p. 30: "The universities' own contributions ... will be covered by their payments to the Consortium of Swiss Academic Libraries (including the usual increase of 5% per year), in other words CHF 83 million in real money for the entire period (CHF 58 million for the cantonal universities and CHF 25 million for the ETH domain and the universities of applied sciences), ..."

The spending in 2014 forms the starting point for the calculations: In 2014, the consortium spent CHF 28.33 million on current content licenses.

7 Documents

- Key focus area Publications, implementation actions EP-10, digitization: Adapted strategy and implementation actions dated March 31, 2015. Online: https://www.swissuniversities.ch/fileadmin/swissuniversities/Dokumente/EN/UH/SUK_P-2/SUC_P-2_DigitizationStrategy_EN.pdf (June 15, 2016).
- National Strategy: Combining Efforts to Manage Scientific Information, approved by the SUC on April 3, 2014. Online: https://www.swissuniversities.ch/fileadmin/swissuniversities/Dokumente/EN/UH/SUK_P-2/SUK_P-2_NationaleStrategie_20140403_EN.pdf (May 29, 2016).

- Report on the consultation procedure: White Paper for a Swiss Information Provisioning and Processing Infrastructure 2020: report on the consultation procedure, dated March 17, 2014. Online: https://www.swissuniversities.ch/fileadmin/swissuniversities/Dokumente/DE/UH/SUK_P-2/SUK_P-2_Vernehmlassungsbericht_20140317_DE.pdf (29.05.2016).
- Swiss Roadmap for Research Infrastructures in View of the ERI Dispatch 2017-2020. Online: http://www.sbfi.admin.ch/themen/01367/02040/index.html?lang=en (May 29, 2016).
- White Paper for a Swiss Information Provisioning and Processing Infrastructure 2020, dated April 14, 2014, (information about the amended digitization strategy added on March 31, 2015). Online: https://www.swissuniversities.ch/fileadmin/swissuniversities/Dokumente/EN/UH/SUK_P-2/WhitePaper_V1.1-EN.pdf (May 29, 2016).