Swiss Personalized Health Network (2017-2020)

First call for proposals

in coordination with the ETH Strategic Focus Area «Personalized Health and Related Technologies» (15.06.2017)

1. Aim and scope

The Swiss Personalized Health Network (SPHN) aims at bringing Switzerland at the forefront of personalized health research by establishing nationwide interoperability of biomedical information. SPHN is a nationwide research collaboration of hospitals and universities in Switzerland with the aim to improve the health of citizens. The network fosters the interdisciplinary exploitation of health-related information in order to develop innovative approaches in prevention, diagnosis and treatment of disease. SPHN creates a common infrastructure and a new culture to share health data between institutions and research groups in Switzerland actively involving patients and healthy individuals.

SPHN is launching a call for proposals aimed at the development of a national interoperable research infrastructure ecosystem for competitive personalized health research. Grants are awarded for projects aiming at the development, implementation and validation of a data infrastructures that allow connecting research institutions and hospitals in order to share and use health-related data across Switzerland. In order to make the best use of the available resources, the SPHN call for proposals is coordinated with the ETH Domain «Strategic Focus Area in Personalized Health and Related Technologies» (PHRT).

SPHN will support projects that fall into one of the following categories:

– **"Driver projects"** demonstrate the value of personalized health research and guide the development of appropriate research infrastructures and nationwide data interoperability mechanisms by "test driving" the infrastructures in a specific area of biomedical research (e.g. making use of patient data obtained in the course of routine clinical decision making for research in cancer research, immunology, etc.). Driver projects are motivated by specific medical or scientific questions, which require a coordinated personalized research approach to succeed. The main goal of these projects is to "drive" the interoperability of the Swiss personalized health research infrastructure network, i.e., the scientific questions must be linked to the development of the infrastructure. Milestones of driver projects should therefore demonstrate the readiness of the infrastructure to support the specific research question. In order to achieve its task in driving nationwide interoperability, driver projects are expected to include the relevant institutions in the specific field.

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– "**Infrastructure development projects**" aim at developing and testing technologies, methods and infrastructures which address specific bottlenecks for personalized health related research. Development projects should address major obstacles which currently hinder the development of personalized health research, or explore solutions which have the potential to significantly accelerate or improve the process. Examples for potential projects: Benchmarking of automated approaches for de-identification of unstructured data, benchmarking of AI approaches for data analytics / DSS, distributed analytics approaches, advanced methods for data privacy protection, societal and health economics aspects of personalized health, etc.

SPHN will focus on supporting activities related to data sharing, infrastructure, and interoperability. Matching contributions by partner institutions may pertain to all aspects within the scope and goals of the specific project, including research activities, data generation, access to research infrastructures and services, etc. Activities taking place within the ETH Domain in the areas of establishing platforms for molecular profiling (–*omics* technologies, single cell profiling, etc.) and demonstrating their use for PH research, biomedical research projects with large-scale data generation, or building reference data resources can be supported by PHRT.

2. Key information

2.1 Call for proposals

SPHN will allocate up to **CHF 18.5 million** for the 2017 call. "Driver projects" are envisaged to span 3 years and can be funded up to a total of CHF 3 million from SPHN. "Infrastructure development project" proposals can be funded up to a total of CHF 500k from SPHN (see 5. Funding Scheme). Funding by SPHN requires matching contributions by the applicant institutions.

Project activities taking place within the ETH Domain and within the scope of the ETH Domain «Strategic Focus Area in Personalized Health and Related Technologies» can request additional funding from the PHRT program. However, applications must include at least one ETH-affiliate and funds can only be used within the ETH-Domain. See http://www.sfa-phrt.ch/ for details.

A subsequent call will be announced in 2018.

2.2 Deadlines for the 2017 call for proposals

The submission deadline for both "Driver" and "Infrastructure development" projects is **15 September 2017 (17h00 CET).**

In case project funding is requested from both SPHN and PHRT, a copy of the application must be submitted in parallel to both programs.

3. Background Information

The long-term goal of the **SPHN** is to establish a Swiss Network in Personalized Medicine/Health, in which all relevant biomedical research institutions, University (and other research) hospitals, research funding organisations, public health institutions/ authorities (e.g. Federal Office of Public Health) and patient/citizen organisations are included.

In the first period 2017-2020, funding priority is given to the development of a nationally coordinated data infrastructure ensuring data interoperability of local and regional information systems. This will optimize the use of health-related data from both patients as well as healthy citizens for research. SPHN will support the additional effort/capacity (e.g. software, personnel) necessary to make clinical phenotype data interoperable and usable for research and to link them with other types of human data (e.g. –*omics* data, imaging data, lab data etc.).

In addition, the ETH Domain «Strategic Focus Area in Personalized Health and Related Technologies» (**PHRT**) will focus on establishing platforms for molecular profiling (–*omics* technologies), biomedical research projects with large-scale data generation, technology translation projects, as well as on education in the area of personalized health. Detailed information about PHRT can be found at http://www.sfa-phrt.ch/.

The **SNSF** contributes to SPHN through project funding as well as through support to currently running longitudinal studies and the Swiss Biobanking Platform. SNSF grant applications will be evaluated in direct competition to other applications, which have been submitted to the same funding instrument. It is important to realize that the SNSF regulations allow researchers to have two independent project grants funded at a time provided that the two projects are thematically clearly distinct from each other and that the project applications are not submitted together at the same deadline. Besides project funding, researchers also have the option to apply to other funding instruments, e.g. Sinergia or ERA Net programs (http://www.snf.ch/).

With Switzerland retrieving full association to the **Horizon 2020**[1] programme from January 2017, Swiss researchers have access to the 'Health, Demographic Change and Well-being' Work Programme 2016-2017 with a total volume of close to 1 billion €. The programme will implement several research priorities such as personalised medicine, rare diseases, human bio-monitoring, mental health, comparative effectiveness research, advanced technologies, e/m-health, robotics, patient empowerment, active and healthy ageing, data security, big data, valorisation, anti-microbial resistance, infectious diseases including vaccines, maternal and child health and the silver economy. Contact your local Eureseach Office for more information (https://www.euresearch.ch/en/about-euresearch/contacts/).

4. Legal basis

The SPHN call for proposals is published in accordance with the Funding Regulations of SPHN and with the mandate of SERI. The call document describes the specific requirements for the award of grants, details regarding the application and evaluation procedures, and the rights and obligations of the grantees. Unless defined in this document, the provisions of the Funding Regulations apply.

Information about the ETH Domain «Strategic Focus Area in Personalized Health and Related Technologies» can be found at http://www.sfa-phrt.ch/.

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[1] http://ec.europa.eu/programmes/horizon2020/en/h2020-section/health-demographic-change-and-wellbeing

5. Provisions specific to the funding scheme

5.1 Basic requirements

Applications must be aligned with the overall goals of SPHN and must clearly indicate how the technical questions will be addressed and implemented.

Adherence to the SPHN ethical data processing framework is a condition for receiving funding from the SPHN initiative. The corresponding checklist must be completed.

"Driver projects" must contribute to establishing a coordinated national network of interoperable data infrastructures. Applications must be coordinated with the respective infrastructure platforms and data providers. Applicants must describe how the project will contribute to the development or the validation of the infrastructure and provide an implementation plan. It must provide information on how the quality of the data will be guaranteed across the network, on how technical interoperability and exchange of the information will be achieved, and how semantic interoperability of their data will be guaranteed, where applicable. As a general rule, applications are expected to have a translational aspect and joint-applications which represent a multicenter consortium are encouraged.

SPHN funding is intended for the purpose of supporting the additional effort/capacity (e.g. personnel, software) necessary to make clinical phenotype data interoperable and usable for research and to link them with other types of human data (e.g. –*omics* data, imaging data, lab data etc.). For projects capturing clinical phenotype data, a strategy must be put in place to insure systematic and sustained clinical (and molecular if appropriate) data acquisition within the normal clinical activity. Such a change of culture should result from a clear strategy put in place by the driver project. Data generation and analysis should focus on developing, testing, and validating the infrastructure and demonstrating its suitability for addressing the research topic. For addressing specific scientific questions in depth, investigators shall pursue project funding from other funding bodies.

Development projects may be performed by a network or a single institution or group. However, the results should be transferable to other SPHN partner institutions.

Grantees commit to collaborate with other SPHN projects and SPHN partner institutions and, in particular, to consult with the Data Coordination Center (dcc@sphn.ch) on the choice of IT systems.

Third-party access to data is a mandatory requirement in accordance with the provisions of the Funding Regulations (Section 2.1).

Requirements pertaining to project activities supported by PHRT can be found in the respective call documentation.

5.2 Duration of funding

Project funding will start earliest in November 2017. The duration of funding is limited to 36 months for "Driver projects". "Infrastructure development projects" are expected in general to achieve their main objectives within 12 months (unless required otherwise for technical reasons).

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6. Requirements for applicants and for submitting an application

6.1 Requirements for applicants

Each proposal submission requires the designation of a main applicant responsible for corresponding with SPHN and for setting up and managing the consortium (i.e. co-applicants and/or associated applicants) for his/her proposal (if applicable). The main applicant needs to be employed as PI / group leader (or similar) for the entire duration of the project at a higher education institution (ETH/EPF, universities, universities of applied sciences), SIB, or University Hospital in Switzerland.

6.2 Requirements for submitting an application

a. Applications must be submitted in compliance with the Funding Regulations of SPHN and must contain all required documents and information.

b. In case project funding is requested from both SPHN and PHRT, a copy of the application must be submitted in parallel to both programs. Applications must be submitted in compliance with the Funding Regulations of both SPHN and PHRT for the respective parts of the budget.

c. Applicants must submit a single project plan that outlines the envisaged technical and scientific questions, a plan for the implementation, and details how project outcomes will be sustained after the termination of SPHN funding. Applicants must provide information on how the quality and interoperability of the data will be guaranteed, and how long-term access to the data / infrastructure / technology generated in the project will be maintained. Applicants must describe their objectives precisely, provide a timeline of the milestones to be achieved.

d. Applications must provide information on how the requested funding will be distributed between the applicants participating in collaborative projects. Associated institutions receiving funding for relevant project activities should be listed as associated applicants (not service provider), unless the activity is available on a standard fee-for-service basis (see SNSF rules for core facility access (http://www.snf.ch/en/funding/infrastructures/use-of-infrastructure/).

e. Applications must adhere to the principles of the Ethical Framework for Responsible Data Processing.

f. Applications must be submitted in electronic form using the **SPHN application and budget templates** through the SPHN website before the application deadline (Section 2.2)

g. Applications (including all annexes) must be written in English. A signed letter of commitment concerning own contributions and adherence to the Ethical Framework for Responsible Data Processing from the host institution's management should be provided (in cash and/or in kind).

h. Applicants may not submit more than one "Driver project" application as main applicant.

i. Other formal requirements relating to the submission of applications apply, i.e. those laid out in the Funding Regulations.

6.3 Associated applicants

SPHN partner institutions, i.e. Swiss higher education institutions (ETH-Domain, Universities, Universities of Applied Sciences) and University Hospitals can act as main applicants or co-applicants for project proposals. Associated applicants are other research institutions and/or

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hospitals who make a partial contribution to a project without taking responsibility for it. As a general rule, costs for associated applicants should not exceed 20% of the total grant. Their involvement in the development and implementation of the infrastructure must be justified.

Under certain circumstances (e.g. no Swiss research group can provide the respective know-how), it is possible to include research groups located in a foreign country. Associated applicants located in countries outside of Switzerland are however not eligible to receive funding.

6.4 Collaboration with industry

For-profit organizations may participate as associated applicants; however, they must cover their efforts with their own resources and provide written guarantee that:

– data provided are accessible at all times and project results can be published without restrictions;
– no commercial use is envisaged on the basis of this specific collaboration.

7. Eligible costs

Applications must include a detailed budget outlining the requested funding for different activities. Eligible costs for support by SPHN and acceptable matching contributions are as follows:

Grants are awarded by SPHN to support the implementation of interoperability of health-related information to support personalized health research. The costs that can be charged include:

a. For IT service facilities: Equipment costs linked to the development and implementation of the research data management systems: IT hardware (computers and data storage), software and licenses;
b. For IT service users: usage fees linked to the usage of IT resources (fees for storage, CPU hours) and support according to respective core facility usage fees (see SNSF regulations);
c. Salaries of collaborators employed to implement information management and analysis systems; this includes efforts to modify data capture systems at hospitals, or efforts to establish mechanisms for programmatic access and sharing of project data (e.g. *-omics*, images, EEG, ECG, etc);
d. Salaries of collaborators employed to manage and curate data;
e. Training costs related to information management and data analysis;
f. Costs of internal project coordination, cooperation, ELSI and networking activities;
g. Research costs for building the necessary infrastructures to reach the primary goals of the initiative such as efficient access to and nationwide interoperability of health-related data.

The costs must be quantified and their coverage requested in the application.

The following costs are excluded:

a. Costs of the creation, expansion and maintenance of laboratory infrastructure, biobanks, etc;
b. Research costs associated with the investigation of specific scientific questions beyond the level defined above.

SPHN may authorize transfers between cost categories during the grant period.

Costs generated by associated applicants must be minor in comparison with the total budget of the project (see 6.3).

Matching contributions by the applicant institutions may pertain to all aspects within the scope and goals of the specific project, i.e. research and development activities, infrastructure, services, etc.

Finally, no overheads and no VAT shall be paid for SPHN funded projects.

In case project funding is requested from both SPHN and PHRT, funding regulations apply for the part of the project supported by the respective funding mechanism.

8. Evaluation process

8.1 Evaluation procedure

The evaluation of the proposals will be preceded by a formal check by the SPHN Management Office and the General Secretariat of the Swiss Academies of Medical Sciences (SAMS). Applications that meet the formal requirements and are within the scope of SPHN will be evaluated by the International Advisory Board (IAB) of SPHN, with support of additional experts if necessary. In case funding is requested from both SPHN and PHRT, applications will be evaluated in parallel by both SPHN and PHRT.

The National Steering Board will decide on SPHN funds allocated to projects taking into account the evaluations by the expert panels (IAB, PHRT, additional experts where applicable).

8.2 Evaluation criteria

Proposals will be selected according to the following general criteria:

a. Fit within the strategic goals of SPHN outlined in Section 3, and potential impact for personalized health research in Switzerland;
b. Contribution to the implementation of a nationwide harmonisation of molecular and clinical data, semantics, and health information management technology in order to achieve nationwide data interoperability;
c. Level of integration of research and clinical data;
d. Quality of the data sharing plan; adherence to international data standards in the respective areas;
e. Quality of the project plan (including ethics/ELSI aspects, sample / data availability, project management and governance, etc.).
f. Financial planning in general and distribution of the funding (total costs, own contributions, federal grant applications, third party funding).

Additional criteria specific to "Infrastructure development projects":

− Address a relevant technological, scientific or ELSI question ("bottleneck") in the area of personalized health / precision medicine with a clearly defined unmet development need;

− Demonstrate high potential / impact for advancing the infrastructure, processes or

capabilities of SPHN;

- − Expertise of the applicants; demonstrated track-record in the respective field of research and technology.

Additional criteria specific to "Driver projects":

- − Potential to guide and support the development of infrastructures for personalized health research and help to assure nationwide data interoperability; specifically making use of patient data obtained in the course of routine clinical care;

- − Address a relevant translational research question (bedside - bioinformatics - basic research) in the area of personalized health / precision medicine and demonstrate the value of personalized approaches in a nationwide network;

- − Bridge geographic and institutional boundaries to address the scientific question and achieve nationwide interoperability (data, samples, processes) in the specific area of research;

- − Test and challenge the performance of existing platforms and infrastructures for molecular profiling, data management and data analytics, and guide the future infrastructure development for SPHN;

- − Include the relevant medical, technical and scientific centers of excellence in Switzerland; applicants should have a track-record of successful work in the respective field of research;

- − Establishes infrastructure platforms, data types, workflows, and processes which are generic / re-usable for future projects in other areas.

8.3 Conflict of interest policy

If a member of an SPHN bodies submits an application, he/she shall be denied access to the evaluation documents and shall be obliged to withdraw from any discussions or decision-making concerning his/her application. In addition, a member of the SPHN bodies must withdraw if he/she has a potential conflict of interests with respect to an application under evaluation by the relevant evaluation body.

Members of the SPHN bodies must declare any reasons for withdrawal without being prompted such as:
- - To be co-applicants for the project being proposed or are referred to as a partner in a cooperation project;
- - To have a close family or personal relationship with the applicant (relatives, marriage, partnership, close friendship);
- - To be professionally depend on or compete with the applicant, or have done so until recently or will do so in the foreseeable future;
- - To have published jointly with the person concerned during the past five years, with such publication being an expression of close cooperation;
- - To fulfill other criteria that put their impartiality in doubt.

All decisions with respect to proposal evaluation and funding are documented in writing, conflict of interests and absence from the discussion will be documented in the meeting minutes.

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8.4 Reconsideration and appeal

Requests for reconsideration must be submitted by the applicants to the SAMS and must be duly justified. In the absence of any signs of a flawed decision, SAMS will refuse requests to reconsider a decision. In cases where the opposite is true, the request for reconsideration is discussed by the SAMS Executive Council which either rejects the request or demands a new decision from SPHN.

SPHN advises applicants to contact the SPHN Management Office in advance in order to obtain information about the appeal procedure. This does not affect the appeal period of 30 days.

9. Grant and grant management

9.1 Legal consequences of the award

On the full or partial approval of a grant application (award), the applicants become grantees of SPHN. Grantees are obliged:

a. to use the grant in accordance with the conditions set out in the funding decision;
b. to comply with the provisions stipulated in these Regulations and all other rules applicable to the grant.

The grantees must provide the MO with a written summary of the planned project that is understandable to non-experts (lay summary). They must also provide thematic keywords for the SPHN website. The lay summary and keywords must be submitted upon receipt of the funding decision, but no later than upon submission of the release of funds request.

9.2 Grant payments

Funds are transferred in annual instalments. The first payment is made upon request by the grantee responsible for correspondence.

Subsequent instalments are subject to approval of the annual project reports (activity & financial reports; attainment of agreed milestones) by the National Steering Board.

9.3 Cost-neutral extension of the project

At the grantee's request, SPHN may exceptionally extend the grant by a maximum of 12 months without provision of additional funding. The extension must be requested before expiry of the grant period and requires a written justification.

9.4 Reporting

Grantees must submit an **annual activity report** to the Management Office no later than 3 months after the end of the calendar year. The following information must be included in the project activity report:

a. summary;
b. main achievements and results; attainment of agreed milestones;
c. next steps.

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Annual financial reports are also to be submitted and must disclose the following:

a. Use of SPHN funds;
b. Own contributions "in cash" and "in kind" by the involved partners.

Financial reports are compiled by the grant administration office of the host institution. They must be reviewed, signed and sent to the Management Office in a timely manner.

Financial reports must be submitted no later than 3 months after the end of the calendar year.

Unused grants must be refunded to the SPHN and may not be put to any other use.

9.5 Discontinuation of funding

If the prerequisites for the award are no longer met after approval of the award or if the circumstances on which approval is based change considerably (e.g. milestones are not reached), SPHN may amend or revoke the approved award and:

a. if the grant has not yet been transferred, it may amend or withhold it;
b. if the grant has already been transferred, it may demand partial or full repayment of the grant.

Prior to taking such measures, SPHN will hear the parties concerned and communicate the amendment or revocation in the form of a ruling.

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A. Appendix

A.1 Table of abbreviations

CDW	Clinical Data Warehouse
DEG	Data Expert Group
EB	Executive Board
ELSI	Ethical-Legal-Social-Issues
ELSIag	Ethical-Legal-Social-Issues advisory group
FOPH	Federal Office for Public Health
IAB	International Advisory Board
IT	Information Technology
MO	Management Office
NSB	National Steering Board
PH	Personalised Health
SAMS	Swiss Academy of Medical Sciences
SBP	Swiss Biobanking Platform
SERI	State Secretariat for Education, Research and Innovation
SIB	Swiss Institute of Bioinformatics
SNSF	Swiss National Science Foundation

A.2 Glossary

Anonymous data	Data which cannot (without disproportionate effort) be traced to a specific person.
Clinical data management system	A clinical data repository which contains both patient structured and unstructured data.
Clinical Data Warehouse (CDW)	A CDW is a collection of patient related data spread throughout its many systems into a consolidated, organized and accessible database for analysis, reporting and research purposes.
Driver projects	Driver projects are based in a concrete research field (e.g. cancer research / immunology, etc) and will push the development of clinical data management systems in all University Hospitals, platforms for molecular profiling, and data analytics infrastructures, by testing data interoperability & data sharing principles within the whole network. Milestones are infrastructure based.
Encoded data	Data linked to a specific person via a code.
Infrastructure	Resources, personnel, and softwares that are necessary for the execution of a specific task. Computing resources (storage, CPU) are considered as consumable.
Infrastructure development projects	Projects that aim to develop and test new technologies, methods and infrastructures for personalized health.

A.3 Eligibility criteria

See SPHN Funding Regulations at http://www.sphn.ch.

A.4 Matching funds guidelines

As required by law, the "matching funds" principle (in cash and/or in kind) is a mandatory prerequisite for receiving SPHN funding.

A letter specifying and confirming own contributions (in cash and/or in kind) by the respective applicant's institutions must be attached to the proposal. The own contributions must pertain to the scope and main goals of the SPHN initiative. They must support the aim of SPHN and not directly relate to clinical service and other health care issues. However, building interconnections between electronic patient records and Personalized Health research data infrastructures are acceptable.

Table 1: Own contributions definitions

Contribution	Definition
cash	Funds that are invested and made available to support SPHN initiatives (projects) that were accepted by the NSB.
kind	Resources from the institutions' operating budget that are explicitly allocated to SPHN initiatives (projects): (1) Personnel paid from the institution's operating budget involved in SPHN initiatives (projects) according to Table 2. (2) Earlier investments (e.g. infrastructure platforms) will be reported within the financial report of the first year. The Executive Board will determine the eligible amount on a case-by-case basis.

Table 2: Applicable rates for personnel (direct cost or in kind contribution)

Role	Lump sum* [CHF]
Professor	270k
Assistant professor	200k
Senior researcher	170k
Postdoctoral researcher	130k
Technician, nurse	130k
Doctoral student	60k

*including salary, social charges, overhead services, infrastructures); to be calculated pro rata (20% max. for professors). The lump sum can be reported only if the salary is paid from the institution's operating budget (i.e. not covered by a grant).