Strategic Focus Area
Personalized Health and Related Technologies

Swiss Personalized Health Network

Swiss Personalized Health Network (SPHN)
and
ETH Strategic Focus Area «Personalized Health and Related Technologies» (PHRT)

Joint call for proposals: National Data Streams

1 June 2021

Executive summary

On the road towards establishing a Swiss personalized health ecosystem, SPHN and PHRT have launched a joint call for proposals for National Data Streams (NDS). This new format provides funding to multidisciplinary consortia that invest in sustainable and reusable health-related data infrastructure development in conjunction with high-end research. The call is open to applicants from all disciplines of data-driven health research.

An NDS will work across the value chain from biomedical research to personalized health and clinical application to address which, and in what form, data can support clinical decision-making for the benefit of patients.

In short, NDS are multidisciplinary consortial research structures involving a national network of clinical and science/engineering partners. NDS that build on pre-existing infrastructures and data sets are preferred, and should encompass clinical as well as analytical (e.g., multi-omics) data. NDS data must be made FAIR (findable, accessible, interoperable, reusable) and of good quality suited for scientific analysis. An NDS moreover includes a lighthouse research project and, potentially, additional research or clinical implementation projects. NDS consortia must have an overarching legal and regulatory framework and a sustainability, quality assurance, and data governance concept in place, to facilitate NDS becoming at least partly financially and organizationally independent and serve the research and healthcare community long-term once SPHN and PHRT funding has ended. NDS should facilitate data-driven health research in a given field, enabling the standardized first-level research use of health data as well as the second-level reuse of curated high-quality datasets in accordance to international and Swiss regulatory and legal standards. This NDS program will allow the build of growing data-rich research platforms for the next generation of researchers and clinicians, with subsequent long-term benefits for patient care.

An NDS (including its infrastructure and research) is envisaged to be funded for up to 36 months with a maximum total amount of CHF 3-5 million. SPHN funding requires matching contributions by the applicants' institutions. PHRT funding requires full participation of affiliates of the ETH Domain in the NDS consortium.

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A project of SAMW and SIB

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1. SPHN and PHRT

The Swiss Personalized Health Network (SPHN) and the ETH Strategic Focus Area "Personalized Health and Related Technologies" (PHRT) have a mandate to build, sustainably implement, and use research infrastructure for health-related data enabling a personalized health ecosystem in Switzerland.

SPHN aims at bringing Switzerland to the forefront of personalized health research by establishing nationwide interoperability of biomedical information. SPHN catalyzes nationwide research collaborations between hospitals and universities in Switzerland with the aim to improve healthcare and promote high-end data-driven health science. The network fosters the interdisciplinary exploitation of health-related data to develop innovative approaches in prevention, diagnosis, and treatment of disease. In the context of personalized health, these data typically involve large datasets, allowing data-driven or multi-omics analytical research approaches. SPHN has created common infrastructures and a change in culture to share health data between institutions and research groups in Switzerland, actively involving patients and healthy individuals.

Personalized Health and Related Technologies (PHRT) is a strategic focus area of the ETH Domain, and is complementary to SPHN. By supporting innovative research in ETH Domain institutions, PHRT's goals include improving the quality of personalized health and precision medicine by providing a choice of individual therapeutic strategies for patients, by developing new tools for diagnosis, disease prognosis, treatment prediction and by identifying new drug targets. Efforts of SPHN and PHRT thus strongly align.

2. Aim and scope

SPHN and PHRT launch a joint call for proposals for National Data Streams (NDS), providing funding for consortia that invest beyond research publication into developing a sustainable and reusable data landscape to support present and future research projects. NDS are paving the way for implementation of personalized health in Switzerland for the benefit of patients. Successful consortia will work across the value chain of translational research (see figure 1), aiming for clinical utility by addressing which – and in what form – data can support clinical decision-making.

Ideally, an NDS builds on some **pre-existing infrastructures and data sets** (SPHN Driver Project consortium, registry, cohort, research or clinical organization, analytical platforms, etc.), preferably with a basic, harmonized data set already available that can be further expanded and enriched. NDS funding is not intended for building up infrastructures from scratch and NDS should not serve the sole purpose of establishing new/combined cohorts or registries.

National Data Streams (NDS) fulfil the following premises:

- NDS are **consortial research structures involving a network** of national importance of multiple clinical and science/engineering partners promoting data-driven, stratified or personalized health research of a given broad topic (e.g., oncology, neurodegenerative diseases, rare diseases) or focused on specific data types suited for this purpose. A **sustainable and robust governance, a regulatory and legal framework, willingness to share data, and excellent project management for the consortium and its assembled data** are of utmost importance.

- NDS **make data from different sources interoperable, fit-for-purpose, and reusable** for high-end data-driven research (incl. structured and unstructured medical data from clinical routine and clinical research, enriched with research data derived from associated biosamples (particularly with multi-omics data) and other sources (e.g., patient-related outcome measures)). NDS are hence **champions for FAIR (findable, accessible, interoperable, reusable) data, developing and implementing common standards throughout the network.**
- An NDS proposal includes an **embedded, high-end lighthouse research project** that demonstrates the value of the NDS for research and healthcare and that generates **national and international visibility for SPHN/PHRT** through scientific publications and conference presentations (first-level research use of the data).
- The **data from the projects running on the NDS must be reusable and must remain accessible via FAIR data repositories for further research projects** of the NDS consortia at a later stage (second-level research use) or of external partners (third-level research use), including other projects of SPHN and PHRT (see section 6). This includes an overarching legal framework and data-sharing governance for the NDS.
- The impact of NDS shall be further leveraged by establishing **feedback loops to clinical care and health decision making.**
- NDS consortia must have a **sustainability and quality concept** to allow the NDS to serve the research and healthcare community long-term as much as possible, after SPHN and PHRT funding has ended. Parts of successful NDS may moreover be integrated in a new, to be founded platform that will coordinate personalized health data on a national level ("National Research Health Data Coordination Center", follow-up from DCC/BioMedIT).
- NDS structures are inspired by NCCRs, and thus **require an experienced study director/main applicant and a project manager** who are responsible for the efficient and successful implementation.
- **Synergies between different NDS** will be sought to prevent redundancies and ensure efficient use of resources.

This call for NDS proposals is **open to applications in all disciplines of data-driven health research.**

Figure 1 depicts the various expected outcomes of an NDS (see also section 6.6), categorized by project-specific vs. sustainable output and positioned along the biomedical value chain.

Figure 2 illustrates the research project-related processes, the infrastructures and personnel along the same value chain.

More detailed information on the requirements for NDS are provided in sections 6 and 7.

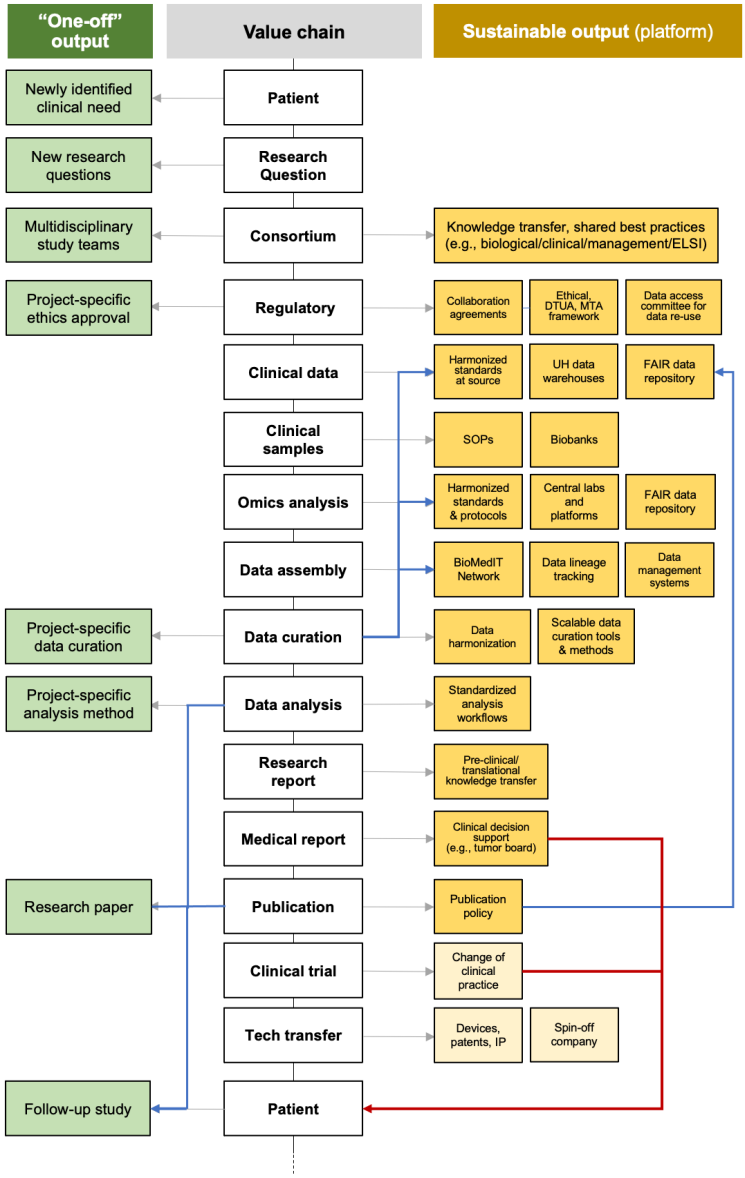

Figure 1: Expected output of National Data Stream funding. NDS outcome can be stratified in one-off (green boxes, left) and sustainable (yellow boxes, right) output. Outcome is shown in relation to its respective link in the biomedical value chain (white boxes, middle). Outcome can feedback into different value chain levels (blue arrows). Red arrows indicate outcome benefiting patients (or healthcare). Note that patents/devices, spin-off companies, and change of clinical practice (light yellow boxes) all represent potential desirable long-term output, yet are outside of the scope of the NDS funding and project timeline.

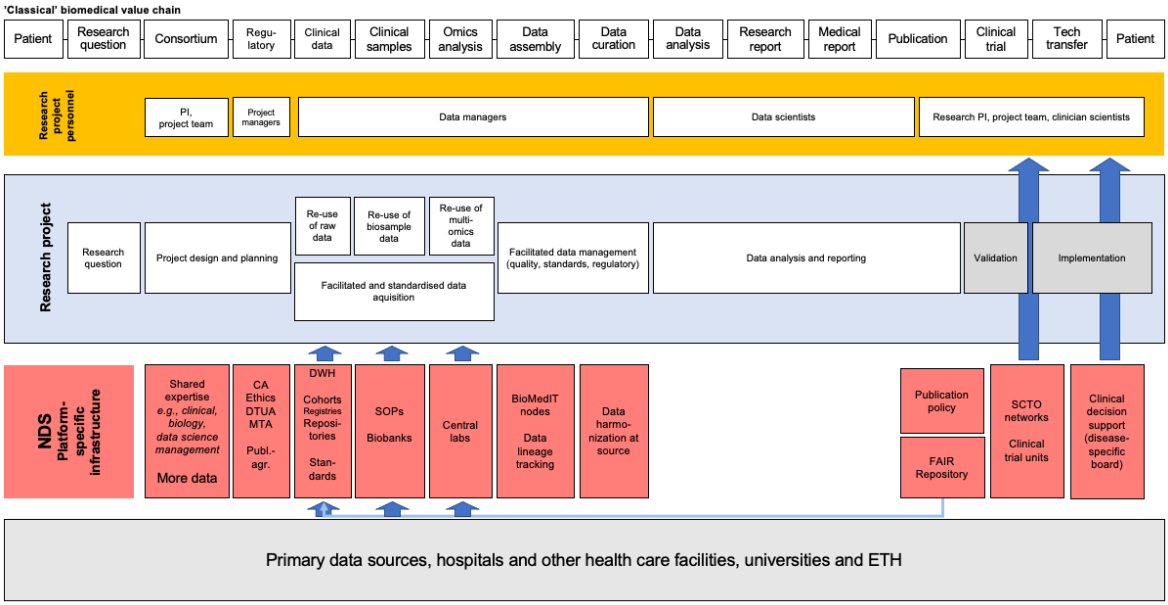

Figure 2: process-oriented representation of an NDS. Relative to the biomedical value chain (white, top), research project personnel (yellow), research project phases (blue), and NDS platform-specific infrastructure (red) are illustrated. Data sources (grey) and data flows (blue arrows) throughout the NDS are indicated. Note that validation and implementation (grey boxes under "research project") are outside the scope of NDS funding and project timeline.

3. Key information

3.1 NDS funding

SPHN and PHRT will together allocate up to CHF 20 million (SPHN CHF 10 million, PHRT CHF 10 million) for National Data Streams. Each NDS can be funded for up to 36 months with a total of up to CHF 3-5 million from SPHN and PHRT (max. CHF 2.5 million from SPHN and PHRT each, excl. matching funds). As many NDS elements as possible should outlive the SPHN and PHRT funding period.

The funding regulations of both programs, SPHN and PHRT, must be fulfilled (see section 8) to receive the full amount. Funding by SPHN requires matching contributions by the applicants' institutions (matching funds). Funding by PHRT requires full participation of affiliates of the ETH Domain in the NDS consortium.

3.2 Overview of the selection process

The selection process comprises two steps: 1) submission and evaluation of outline proposals and 2) submission and evaluation of full proposals and decision on which NDS applications will be funded. From the received outline proposals, five to six applications will be selected for submitting a full proposal. Of those, three to four NDS projects can be funded.

Outline proposal:

Applicants first submit an outline proposal in which they present the vision, planned regulatory and legal framework model, governance and data sharing policy, quality concept, outcomes, architecture, and potential of the NDS (see **chapter 7.5** for details).

The outline proposal will be evaluated by SPHN, PHRT, and national and international experts (see **chapter 9.1** for evaluation procedure and criteria). The successful applicants will be invited to submit a full proposal and offered feedback on their outline proposal.

Full proposal:

Successful main applicants are invited to elaborate a full proposal describing in detail the consortium (approved organization, governance, publication policy, approved ethical, legal and regulatory framework for data sharing), project plan, research plan, financial and sustainability concept and the contributions of all partners (see **chapter 7.5** for details).

The full proposal will be internationally peer-reviewed. Applicants will be invited for a short presentation and an interview with an interdisciplinary panel.

Based on the recommendations from the reviewers and the panel, the SPHN National Steering Board (NSB) and the PHRT Executive Committee will make the final selection of the NDS to be funded.

3.3 Deadlines for the 2021 call for National Data Streams proposals

22 August 2021 (23h59 CET)	Submission deadline for outline proposals for NDS
Mid-November 2021	Short-listed proposals will be invited to submit a full proposal
27 February 2022 (23h59 CET)	Submission deadline for full proposals for NDS
End of May 2022	Final selection of NDS by the NSB and PHRT

3.4 Duration of funding

Project funding for NDS will start 1 June 2022 at the earliest. NDS are expected to achieve their main objectives within 36 months, that is, by 30.05.2025 at the latest. Ideally, NDS will be (partly) self-sustainable once SPHN and PHRT funding has ran out (see 6.5 and 8.3).

4. Background information

The long-term goal of 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 organizations, public health institutions/authorities (e.g., Federal Office of Public Health) and patient/citizen organizations are included.

In the first period 2017-2020, funding priority by SPHN was given to the development of nationally coordinated data infrastructures enabling data interoperability of local and regional information systems. The second and final SPHN funding period 2021-2024 will focus on implementation and sustainability of such infrastructures within the Swiss research and healthcare landscape and on creation of lighthouse research platforms and related output.

Based on international models (e.g., FinnGen, Deutsche Zentren der Gesundheitsforschung), the National Data Stream (NDS) concept aims to profit from available SPHN, PHRT, and other infrastructures and motivated and experienced consortia of multidisciplinary stakeholders with shared interests in a given field of data-driven stratified and personalized health research and care (e.g., in the field of oncology, neurology, rare diseases). NDS typically profit from multi-omics platforms (encompassing clinical data, genomics, proteomics, metabolomics, exposomics, etc.). They should have a sustainability concept formulating how nested future research projects will be facilitated and how to work towards organizational and financial independence of NDS elements once PHRT and SPHN funded has ended. They must moreover demonstrate added value for sustainable health-related research, as well as data-driven healthcare with focus on stratified and personalized medicine.

PHRT aims at promoting research in personalized health and medicine within the ETH institutions in close partnership with hospitals and other clinical partners. The goal is to generate high level research results supporting new discoveries for personalized medicine (for diagnosis, treatment and rehabilitation) and educate a next generation of health scientists with interdisciplinary expertise in this new medical field. The PHRT program started in 2017 is currently in its second funding period which will last until 2024. PHRT set up in the first phase three Technology Platforms/Centers/Hubs for generating standardized data from clinical samples: (i) Clinical Genome Analysis Center (CGAC in Geneva), (ii) Clinical Proteotype Analysis Center (CPAC in Zurich), and (iii) Clinical Metabolome Analysis Center (CMAC in Zurich). In the second phase, PHRT is setting up two additional Hubs: (iv) Clinical Imaging (decentralized), and (v) Computational Data Analysis (decentralized). These high-end installations offer an efficient, standardized support for NDS.

This will optimize the quality and 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). The ETH research institutions can provide additional funding for data generation by the ETH Domain.

Complementary, third-party funded projects (e.g., via SNSF) are welcome to contribute to NDS as data providers or in research collaborations. Overlap and synergies between projects must be clearly defined and stated transparently in the NDS proposal.

5. Legal basis

This call for proposals is published in accordance with the Funding Regulations of SPHN and with the mandate of SERI. For PHRT, the regulation of the Partnership Agreement signed in November 2020 apply. National Data Streams (NDS) fall under the category of large “Driver” projects. 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 of SPHN and PHRT apply.

6. Funding requirements

6.1 Basic requirements

Applications must align with the overall goals of SPHN and PHRT and must clearly indicate how the technical and medical questions will be addressed, implemented, and sustainably maintained. The embedded lighthouse research project must be based on a clearly formulated scientific/medical question in the area of personalized health, meeting an unmet medical need with high relevance for clinical and health decision making. NDS consortia have a clear leadership, governance, and organizational structure and are champions for developing, harmonizing, and implementing SPHN standards within their institutions and nationwide. Driver project consortia from the previous SPHN calls that apply for NDS must show added value of the NDS proposal with respect to scope, research, sustainability, and health decision making.

Adherence to the current valid version of the SPHN Ethical Framework for Responsible Data Processing and the SPHN Information Security Policy is a condition for receiving funding from the SPHN initiative. Furthermore, the SPHN recommendations for Reporting Actionable Genetic Findings to Research Participants should be followed. Applicants should consult the SPHN webpage or PHRT webpage for information about the newest versions of these documents.

Applications must be coordinated with the respective infrastructure platforms and all data providers and data processors (e.g., BioMedIT). Applicants must describe how the project will contribute to the development and the validation of the infrastructure/platform and provide an implementation plan. It must provide information on how the quality of the data will be guaranteed across the consortium, on how technical interoperability and exchange of the information according to SPHN standards will be achieved, and how semantic interoperability of their data, in line with the SPHN Semantics Interoperability Strategy, will be guaranteed.

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

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

6.2 Governance requirements

Within its research consortium of trusted partners, the NDS must have in place a sound consortium governance (including a consortium agreement (according to SPHN template), a publication agreement, ethics approvals, a legal framework for first-, second-, and third-level research use of data according to university hospitals' collaboration agreements (CA) and SPHN data transfer and use agreements (DTUA), an NDS governance board (including representatives from data providers, etc.) as well as project leadership and project management that ensure sustainability and broad data sharing among all partners (e.g., similar to cohort consortia). Moreover, a streamlined solution for consent management in close collaboration with the data providers needs to be in place. This includes, for instance, efficient communication between data providers and NDS data managers regarding changes in consent status and clinically actionable findings.

Furthermore, any new use of data has to be approved by all data providers in a timely manner and according to a transparent process. In addition, the NDS needs to establish a straightforward process and infrastructure such that researchers who are not part of the NDS consortium can request access to the NDS data in line with best scientific practices and according to the law[1], the SPHN Ethical Framework for Responsible Data Processing, and SPHN Information Security Policy. **Facilitating data access to other projects is a requirement for NDS**.

6.2.1 Data Access Framework

Consortia must provide a clear regulatory and legal framework for the situations described below. These regulations must be validated and agreed on by all stakeholders, including data providers (hospitals, biobanks, cohorts/registries, etc.), analytical platforms, technology hubs and other data processing facilities.

- **First-level research use of NDS data.** This encompasses one or more **long-term, large-scale, EC-approved research projects,** for which a set of data is being exchanged between a data provider (e.g., university hospital) and the NDS consortium. All involved parties need to sign a DTUA specifying the consortium members, the dataset to be exchanged (Appendix 1 of the DTUA template from SPHN[2]), and the allowed long-term use as described in the EC-approved research plan/study protocol (Appendix 2 of the DTUA template from SPHN). Data providers must verify before any transfer of data that the consent of the data subject (patient) accords with the intended use. A Material Transfer Agreement (MTA) with the sample providers is required for the exchange of patient-derived biospecimens. In the course of the research project, the NDS consortium will curate and annotate the data from the data provider and integrate it with data from other sources (e.g., omics data), thereby generating an enriched research dataset. The **de-identified research dataset remains on the data stream platform for further nested research projects in accordance with the data providers and the EC-approved study protocol.**
- **Second-level research use of NDS data.** The NDS needs to establish a governance process in collaboration with its data providers to define further use of data for **nested, EC-approved research projects** that emerge from and build on the enriched research dataset. The long-term possibility for conducting nested projects and the processes for implementing such nested projects must be described in the EC-approved research project and agreed on by the data providers. Data providers shall be contacted before the start of a nested research project to verify the consent status of data subjects. Amended or new agreements and research plans must be approved by all parties and fulfil the legal and ethical requirements.
- **Third-level research use of NDS data. New projects** that are not in scope of an ongoing long-term research project require a new agreement between all involved parties (including data providers, research consortium that enriched the dataset, third parties) and the approval of the relevant EC. **External researchers** that are not part of the NDS consortium must have the possibility to apply in the context of specific research projects, via a defined and transparent process, for use of the NDS data and reuse of data from completed NDS projects.

[1] See also mySNF. Under “New application” -> “Division III project” -> “Application data” -> “2.11 Research requiring authorization and notification”, one can find comprehensive information of required regulatory/legal/ethics forms.
[2] See https://sphn.ch/services/dtua/

An NDS governance board (including representatives from all data providers) should be in charge of processing third-party data requests. This will generally require the consent of the data subject (patient), a new research plan/study protocol approved by the relevant ECs, and a third-use Data (Transfer and) Use Agreement (D(T)UA template of SPHN[3]) to be signed by the original data providers, NDS consortium, and the respective third party.

In general, neither unprocessed nor processed data from data providers may be further transferred by an SPHN-funded project to any third party without the explicit written agreement of the data providers. If a data transfer is authorized by a data provider (e.g., university hospital), provisions must be in place guaranteeing accurate and timely consent management and communication of clinically actionable findings.

The NDS data manager shall serve as a **single point of contact** for all communication with data providers (including university hospitals) and shall have an efficient and transparent process in place for handling, for instance, revoked consent or clinically actionable findings. NDS shall give feedback on results and data quality to data providers in a timely manner.

6.3 Data requirements, concept of data quality, data management plan

NDS define and build interfaces to different health data sources to enable the push of a converging stream of interoperable data for specific research projects. NDS data are derived from different origins (clinical routine, basic/translational research, other), from different sources (university hospitals, cantonal or private hospitals and other healthcare providers, -omics platforms, research data collections, etc.) and should be of different types (structured and free-text phenotype data, imaging data, lab data, genomic data, etc.). At the end of the project(s), the enriched data shall remain on the NDS platform in a findable and reusable manner. The consortia must provide a concept of data quality for scientific use of data and a data management plan. This includes the following dimensions:

- Data of the NDS must adhere to FAIR principles as well as to SPHN, SBP, and SCTO standards, including data-encoding standards.
- Data of the NDS must be of high quality (considering completeness, consistency, conformity, accuracy, integrity, and timeliness; for clinical data, see[4]).
- Data assembling and integration into the framework of NDS must follow the SPHN semantic framework with RDF as exchange format of choice. Requests for exceptions must be very well justified.
- Overarching data management plans (DMPs) for NDS projects should be elaborated according to SNSF standards[5].
- NDS projects are required to encompass not only clinical, but also biomedical/biomarker/analytical (-omics, imaging, ECG, etc.) data.
- Clinical data that are obtained from university hospitals (UH) must be derived from the respective data warehouses (DWH), in coordination with the responsible persons.
- Clinical data from non-university hospitals can complement university hospital data and should be collected in a scalable and sustainable (and, eventually, automated) manner.

[3] See https://sphn.ch/services/dtua/
[4] See https://www.pharmacoepi.org/resources/policies/guidelines-08027/
[5] See http://www.snf.ch/en/theSNSF/research-policies/open_research_data/Pages/data-management-plan-dmp-guidelines-for-researchers.aspx

- Additional data sources can include curated and/or annotated data from existing databases, research databases, patient-related outcome measures, analytical platforms, diagnostic and monitoring tools, etc.
- Other consortia, such as cohort consortia, registries, biobanks, etc. are welcome to join the NDS.
- NDS must invest in interoperability of data at the different sources and their fit-for-purpose. Interoperability must be ensured before the first research project of an NDS starts.
- NDS must proactively contribute to the further development of the SPHN Interoperability Strategy.
- The NDS data must be embedded in the BioMedIT network[6] (and future "National Research Health Data Coordination Center", follow-up from DCC/BioMedIT).
- NDS must provide respective documentation, data catalogues, etc. to make the data findable for the research community.

Concerning the prospective collection of data, a strategy must be put in place to ensure systematic and sustained clinical (and molecular if appropriate) data acquisition within the normal clinical activity. Efforts must be focused on sustainably standardizing and harmonizing data capture at the source or on extract-transform-load processes, and not on manual curation of retrospective data. Such a change of culture should improve data quality within data provider institutions and result from a clear strategy put in place by the NDS. Data generation and analysis should focus on developing, testing, and validating the infrastructure and demonstrating its value for research and health decision making.

6.4 Scientific requirements

The embedded lighthouse research project demonstrates that the NDS data are fit for the purpose of generating valuable scientific insights and performing cutting-edge research. It shall motivate the reuse of data by the research community in follow-up research projects and in new contexts.

- Research projects must show the added value of the NDS and exceed what individual researchers could achieve
- Demonstrate the synergies between the consortium members for multidisciplinary research
- Generate scientific breakthroughs/new insights
- Stimulate multidisciplinary research, new scientific approaches/methods, and collaboration in new research fields
- Strengthen international position and embeddedness in the field.

6.5 Requirements relating to impact and sustainability

NDS need to create value for data-driven research and healthcare of patients and citizens, such that stakeholders will keep investing in the NDS when SPHN and PHRT funding ends in 2024. NDS applications must clearly describe what value they bring to different stakeholders and must describe in a sustainability concept how the organization, and/or services related to expanding, enriching, and providing access to the NDS data can be maintained. This must be in accordance with the research strategy of their academic clinical and research institutions.

[6] https://sphn.ch/network/projects/biomedit/ and www.biomedit.ch

- NDS shall create feedback loops to (university) hospitals and healthcare providers and share enriched data and research results for better clinical and health decision making.
- The sustainability concept needs to show what resources are needed to maintain and further develop the NDS from 2025 on.
- It needs to propose ways to obtain the resources necessary to continue with NDS activities by the end of 2024.

6.6 Required outcomes/deliverables of NDS

In summary, an NDS ideally encompasses the following outcomes:

- A **research network** converging different streams of FAIR data (according to SPHN standards) from clinical routine, clinical research, molecular and -omics data (e.g., from PHRT platforms/centers/hubs), as well as other relevant data (e.g., PROMs, telemonitoring data), accessible to the research community.
- An **organizational structure** (consortium with strong leadership and governance between the involved institutions) for maintaining and developing the NDS also after SPHN and PHRT has ended.
- A transparent **regulatory and legal framework, data sharing governance** and **data access and publishing policy** for the consortium of trusted partners and a **straightforward process for how external researchers can access data**.
- A **lighthouse research project** of international visibility generating scientific insights and demonstrating the value of the NDS for research and health, including scientific publications in the given field.
- Demonstrated fit-for-purpose through **a lighthouse research project and other completed research projects** conducted by NDS-internal and -external investigators using the NDS infrastructure.
- **Multi-omics or other quantitative-datasets** from the lighthouse research project and other embedded research projects of good quality and optimized data semantics, formats and standards according to SPHN and/or international standards. These must remain available to the consortia for secondary and tertiary use.
- A **growing NDS data set** derived from first-, second- and third-level research projects and well-defined metadata to be fed into a searchable meta-data catalogue, as well as a data quality concept including a DMP.
- **Demonstrated value for health decision making and healthcare in general**, by creating a feedback loop of the integrated information back to the clinicians to the benefit of patients.
- **Demonstrated value for SPHN and PHRT infrastructures** (UH Data Warehouses, BioMedIT, etc.) by creating a feedback loop for improving data quality and interoperability at the source.
- A **concept** for the sustainable long-term financial and personnel maintenance of the infrastructures (not the research project), and further development and financing of the NDS. In this long-term concept, commitment to integrating the infrastructures into the new independent national center for health data coordination must be formulated (follow-up of DCC/BioMedIT).

7. Requirements for applicants and for submitting an application

7.1 Requirements for applicants

Applicants together typically constitute consortia of Swiss academic stakeholders and have clear leadership and governance structures. Consortium agreements, including data sharing agreements within the consortia and with data providers (e.g., hospitals)[7], are required.

NDS are required to employ an **experienced project manager who coordinates all NDS activities end-to-end** in close collaboration with the main applicants. This single point of contact will have an important function in communicating with SPHN and PHRT.

NDS are required to employ an **experienced data manager who oversees NDS data lifecycle management end-to-end** in close collaboration with the DCC.

7.1.1 Main applicants

Each proposal submission requires the designation of a **main applicant (designated NDS director) responsible for corresponding with SPHN** and, if applicable, **a second main applicant from the ETH Domain (designated NDS co-director) responsible for corresponding with PHRT** (or vice versa). The two directors jointly assume responsibility for the scientific and managerial leadership of the NDS and for setting up and **leading** the consortium (i.e., co-applicants and/or associated applicants). The main applicants need to be employed as faculty (or equivalent) for the entire duration of the project at a higher education institution (ETH/EPFL, universities, universities of applied sciences), or university hospital in Switzerland. Main applicants must have proven experience in managing large and ambitious clinical research environments.

7.1.2 Co-applicants

Faculties, PIs or group leaders (or similar) employed at SPHN partner institutions, i.e., Swiss higher-education institutions (ETH Domain, universities, universities of applied sciences) and university hospitals act as co-applicants for NDS proposals and are fully eligible to receive SPHN funding.

7.1.3 Associated applicants

Wider participation of various institutions is desired: For instance, other hospitals (e.g., cantonal hospitals) and research institutions (including research facilities of national importance as defined by Article 15 of the Federal Act on the Promotion of Research and Innovation) are encouraged to associate with SPHN partner institutions and to submit joint applications.

Associated applicants are employed at other research institutions or hospitals who make a partial contribution to a project. As a general rule, costs for all associated applicants combined should not exceed 20% of the total grant from SPHN. Their involvement in the development and implementation of the NDS must be justified.

[7] See https://sphn.ch/services/dtua/

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. Please contact the SPHN Management Office to discuss specific cases.

7.1.4 Collaborations with industry

For-profit organizations are invited to collaborate with an NDS consortium led by a SPHN partner institution and may participate as associated applicants on a project basis; however, they must cover their efforts with their own resources and provide written guarantee that:

1. A clear collaboration agreement is established based on public-private partnership (PPP) guidelines of SPHN
2. Data provided are accessible at all times by all parties in the agreement and project results can be published without restrictions.
3. Uses of NDS aim at generating scientific knowledge and their use is not a commercial activity.

The following recommendations on ethical data sharing in public-private partnerships (PPPs) should be considered in the collaboration agreement:

- Partners should define an aligned vision for the PPP and how they create public value.
- Partners should determine and agree upon fair distribution of benefits among the partners in the PPP as well as the public.
- Partners should not seek to patent or claim IP rights on data created or collected through SPHN funding. IP should only be placed on the outcome of data use, e.g., the developed products or algorithms.
- SPHN-funded grantees should not negotiate exclusive use of data with private sector actors.
- Data donors should be informed about PPPs which utilize their data.
- Partners should define how they plan to engage data donors in the research activities enabled by the PPP.
- All partners in a PPP should agree on criteria to ensure due credit to the parties who provide the data, as well as to SPHN for funding the research activities leading to data collection.
- Partners should make data available in public repositories after the PPP to the extent reasonably possible.

7.2 Requirements for submitting an application

The following requirements apply:

a. Applications must be submitted in compliance with the Funding Regulations of SPHN and PHRT (if funding from both programs is requested) and must contain all required documents and information (see application template on the SPHN website).
b. Applications must adhere to the principles of the current valid version of the Ethical Framework for Responsible Data Processing and the SPHN Information Security Policy.

c. Applications must be submitted in electronic form, using the application and budget templates from the SPHN website, before the application deadline (Section 3.3).
d. Applications (including all annexes) must be written in English.
e. Applicants may not submit more than one NDS application as main applicant. NDS main applicants are however allowed to participate in other SPHN projects as co-applicant.
f. Applicants are expected to consider gender balances when forming their consortium and hiring personnel (project manager, research team).
g. Other formal requirements relating to the submission of applications apply, i.e., those laid out in the Funding Regulations.
h. Applications must be submitted to nds@sphn.ch (for SPHN funding applications) **or** to nds@sphn.ch **and** phrt-office@ethz.ch (for SPHN and PHRT funding applications).
i. The research activities of the NDS lighthouse research project need to show that the NDS is fit-for-purpose and demonstrate its value for research and health decision making.

Applicants must provide the following information in one single proposal (please note that the level of detail between outline and full proposals differ. See 7.3 for specific list of documents per application stage, and see the application and budget templates on the SPHN website):

a. Technical, implementation, and sustainability plan.
b. Data and data management plan, covering data types to be included, data flow, data quality and security concept, and how FAIR criteria will be adhered to.
c. A proposed model for ethical, regulatory, and legal framework, including organizational structure and data sharing framework.
d. Research plan for the lighthouse research plan, including scientific questions, goals, and milestones.
e. Description of the consortium with CVs of all applicants, and, for the main applicant(s) and the project manager (if known), a statement describing their management-related principles, skills, and ability to lead, motivate, and organize an NDS.
f. Sustainability plan describing how (and which parts of) the NDS could outlive SPHN and/or PHRT funding, and how long-term access to data/infrastructure/technology generated in the project will be maintained.
g. Description of added value for health/clinical decision making and already established structures (infrastructures, project groups, datasets, biospecimen collections, proofs of concept, etc.)
h. Objectives must be described precisely
i. A timeline for milestones must be provided wherever applicable.
j. Applications must provide a budget (see budget template) with the following considerations. Funding requirements of SPHN and PHRT must be fulfilled for the respective parts of the NDS budget (see eligible costs):
   – The budget should include information on how the requested funding will be distributed between the applicants participating in the NDS consortium. Associated institutions receiving SPHN 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[8]).

[8] http://www.snf.ch/en/funding/infrastructures/use-of-infrastructure/Pages/default.aspx

  - As a rule of thumb, at least 50% of the grant money should be dedicated to showing data interoperability, data management, project management, and quality control.
  - The resources allocated to hospital IT for providing necessary data in the appropriate format must be specified.

k. Applicants requesting funding from SPHN must provide a signed letter of support resp. commitment from their host institution's management concerning own contributions (in cash and/or in kind) and adherence to the current valid version of the Ethical Framework for Responsible Data Processing and SPHN Information Security Policy ~~by all applicants~~. If several applicants from the same institution are part of the same NDS proposal, the host institutions may provide one letter that covers the total amount requested by its applicants. The letter should be signed by a person who is authorized to sign research grants/contracts (Authorized Legal Signatory for Research Contracts). Depending on the institutional bylaws, it can be the Dean, the Vice-Rector/Vice-President or the Head of the Grants Office.

l. In addition, support letters resp. confirmation of feasibility from all data and service providers not listed as applicants (e.g., university hospital data warehouses, analytical (PHRT) platforms, main BioMedIT node) are expected, which outline what services and/or data will be provided, and that the required resources have been discussed.

7.3 Required documents

For **NDS outline proposals**, the following documents are required (see NDS outline proposal template and other NDS template on the SPHN website, and 7.2 for detailed requirements):

- **Outline proposal.**
- **Outline research plan** of the embedded lighthouse research project.
- **CVs and publication lists of all applicants.**
- **Outline budget and milestones** (see section 8).
- **Support letters** from all host institutions of applicants that request SPHN funding (see support letter template). In the letter, host institutions should acknowledge own contributions (in cash and/or in kind) and adherence to the current valid version of the Ethical Framework for Responsible Data Processing if the project gets funded.
- **Support letters** from all data and service providers not listed as applicants (e.g., university hospital data warehouses, analytical (PHRT) platforms, main BioMedIT node) outlining what services and/or data will be provided and that required resources have been discussed (see template).
- **Outline sustainability concept.**
- **Proposed model for ethical, regulatory, and legal framework**, including organizational structure and data-sharing framework (approval by legal contracts not yet required at this stage).

For **NDS full proposals** the following supporting documents are required **in addition to the final proposal, research plan, budget and sustainability concept** (see NDS full proposal template):

- **Commitment letters** of co-applicants' institutions, specifying each member's contribution (own contributions, SPHN/PHRT-funded contributions, third-party contributions)

- **Confirmation of feasibility** from (PHRT) platforms/centers/hubs, clinical data warehouses, and the main BioMedIT node. This includes budgets for eligible costs (data curation, analysis costs, bioinformatics costs, etc.; see below)
- **Detailed consortium agreement: governance, organizational structure, ethical, regulatory and legal framework** including data sharing and publication policy.

Before the release of the first instalment, the following documents are required:

- **Approved and signed consortium agreement** (SPHN template) signed by all project partners
- **Signed Data Transfer and Use Agreement** (SPHN template); including process for second-level and third-level further use requests.
- **Fully approved ethics protocol** and **consent** framework.

8. Budget requirements

Applications must include a detailed budget outlining the requested funding for different activities. Activities that were already in the scope of a Driver Project from the previous SPHN calls can generally not be budgeted again for the NDS.

8.1 Eligible costs for support by SPHN and acceptable matching contributions

Grants are awarded by SPHN to support improving and benchmarking data sharing, infrastructure, interoperability of clinical and research data, scientific output (publication), and feedback loops to clinical care and health decision making. The costs that can be charged include (cost categories given in italics, cf. budget template):

- Salaries of collaborators employed to implement information management and analysis systems, including 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.) (*personnel costs*).
- Salaries of collaborators employed to generate, manage, curate, or analyze data (*personnel costs*).
- Costs of project management, internal project coordination, cooperation, ELSI (including data governance board), and networking activities (*personnel costs*).
- 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 (*equipment costs*).
- 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[9]) (*consumables*).
- Costs related to information management and data analysis (*miscellaneous*).
- Costs for building the necessary infrastructures (*equipment costs*)

[9] http://www.snf.ch/en/funding/infrastructures/use-of-infrastructure/Pages/default.aspx

- Costs for generating, analyzing and disseminating research data to reach the primary goals of the embedded lighthouse research project (*equipment costs*).
- Research costs incurred by ETH Domain consortium members should be covered by PHRT.

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, etc.
b. Research costs associated with the investigation of specific scientific questions beyond the level defined above.
c. Under no circumstances does SPHN cover the following costs: standard IT equipment incl. hardware and software, scientific literature, tools and aids, and objects comprising the usual basic equipment of an operational scientific facility. Expenses for regular postage, phone calls, photocopies, translations, etc., are also not eligible (except project-induced costs of patient-centered research, such as questionnaire mailings). In addition, outlays for rent, electricity, water, insurances, maintenance and service, service centers and repairs are not regarded as eligible costs.
d. No overheads shall be paid for SPHN-funded projects.

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 Section 7.3).

Matching contributions (i.e., own contributions) by the applicants' 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. The matching funds principle applies to all financial contributions provided by SPHN. The corresponding grantee is responsible for ensuring that, at the end of the project, all funds received from SPHN are matched by own contributions from the institutions involved in the project.

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

8.2 Eligible costs for support by PHRT

Generally, only consortia with applicants from the ETH Domain are eligible for PHRT funds. PHRT funds can only be paid to (co-)applicants employed at an ETH Domain institution. However, the ETH Domain (co-) PI can use funding for "clinical services" to pay respective tasks of non-ETH Domain institutions. Consortia with a PHRT eligible (co-)PI that use PHRT services, however, may be eligible for PHRT funds covering costs for these specific services.

PHRT awards research grants to support platforms/centers/hubs for molecular profiling (-omics technologies, single cell profiling, imaging analysis etc.), interoperability, data quality demonstrating their use for personalized health research. Costs that can be covered by PHRT are in essence the (research) part of the NDS performed by ETH Domain groups, or more specific:

a. Research costs for data acquisition on PHRT platforms/centers/hubs (genomic platform, proteomic platform, clinical metabolomics, planned multicentric imaging hub, and any future PHRT hub).
b. Clinical services needed for sample acquisition/preparation or to compile and make interoperable clinical data and meta data by hospital/ university staff

c. Research costs for generating, analyzing and disseminating research data: only if the funds go to PHRT platforms and ETH/EPF Domain research groups

All infrastructures and data generated with SPHN and PHRT funds must be made available – under an adequate governance – to the SPHN/PHRT partners and the general research and clinical community, in line with the SPHN Ethical Framework for Responsible Data Processing.

8.3 Budgeting considerations

NDS need to define funding sources (either from SPHN/PHRT funds, own contributions, or third parties) for (non-exhaustive list):

- Defining and implementing a data life-cycle management in accordance with the FAIR principles[10] regarding data acquisition, transformation, transfer, curation, modelling, data lineage tracking, deposition in FAIR data repositories, etc.
- Elaborating, in collaboration with subject matter experts and in alignment with the DCC, semantic concepts for NDS-specific data not yet included in the SPHN dataset
- Provision of data by the data providers according to the SPHN interoperability framework (including data-encoding standards);
- Consent management in close collaboration with data providers
- Acquisition, transfer and harmonization/integration of data from outside of UH
- Data storage and computing capacity on BioMedIT (beyond the offered base package)
- Specifying meta-data of the NDS to be integrated in a national catalogue
- Continuous deposition of NDS data in FAIR data repositories according to governance policies
- Data governance processes, in particular for the third-level research use of data (handling of data requests, establishment and maintenance of a Governance Board, contract management, data delivery to requesters, etc.)
- Research project costs (including, e.g., salary costs, regulatory approvals, patient and data recruitment, sample preparation, molecular analyses/data acquisition, data analysis, publication)
- Feedback loop to clinical/health decision making in clinics
- Building up and maintaining the NDS organization/project management.

9. Evaluation process

9.1 Evaluation procedure

The evaluation of the proposals will be preceded by a formal check by the SPHN and PHRT Management Offices. Outline proposals that meet the formal requirements and are within the scope of SPHN and PHRT will be evaluated in two steps. Firstly, an interdisciplinary panel composed of members of the SPHN and PHRT governance bodies perform a feasibility analysis with regard to the existing SPHN and PHRT infrastructure. Secondly, the proposals are evaluated by international experts regarding scientific excellence and by national experts regarding the relevance for the Swiss research infrastructure landscape. The SPHN National Steering Board and PHRT Executive Committee will jointly decide which applications will be invited to submit a full proposal.

[10] See www.go-fair.org

Full proposals will undergo a similar evaluation procedure: After a formal check by the respective management offices and a second feasibility analysis by an interdisciplinary panel, the full proposals will be evaluated by international experts, including an interview with the applicants. The SPHN NSB and the PHRT EC will jointly select the NDS projects to be funded and decide on the amount of funds allocated to projects taking the expert evaluations into account.

9.2 Evaluation criteria

Proposals will be selected according to the following criteria:

General criteria:

a. Fit within the strategic goals of SPHN and PHRT outlined in Section 1, 2, and 4, and have potential to impact personalized health in Switzerland.
b. Feasibility of reaching the aims within the given time frame.
c. Financial planning in general and distribution of the funding (total costs, own contributions, federal grant applications, third party funding).
d. Quality of the sustainability concept outlining long-term maintenance and continuing development of the infrastructures after SPHN/PHRT funding has ended.

Scientific criteria:

e. Excellence of the research plan of the embedded lighthouse research project.
f. Expected impact for research (potential for breakthroughs/new insights) and for clinical/health decision making.
g. Potential to create national and international visibility, strengthening international position and embeddedness in the area of personalized health.
h. Level of integration of research and clinical data.
i. The ability of the applicants to conduct breakthrough research.

Infrastructural criteria:

j. Contribution to the implementation of a nationwide harmonization of molecular and clinical data, semantics, and health information management technology in order to achieve nationwide data interoperability and a convergence of complementary streams of data.
k. Quality of the data sharing plan; adherence to international data standards in the respective areas.
l. Quality of the project organization (leadership, project management, governance including size of the consortium, etc.) and project plan (including ethics/ELSI aspects, sample/data availability)
m. Complementarity and degree of overlap with projects funded in the first two calls for proposals (see SPHN website for the list of projects awarded in 2017 and 2018).
n. Added value to the field with particular focus on sustainability.

9.3 Conflict of interest policy

If a member of an SPHN or PHRT body 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 any SPHN or PHRT body must withdraw if he/she

has a potential conflict of interest with respect to an application under evaluation by the relevant evaluation body.

Members of the SPHN and PHRT bodies must declare any reasons for withdrawal without being prompted such as:

- To be co-applicant 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 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 fulfil 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.

9.4 Reconsideration and appeal

Requests for reconsideration by SPHN 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 to obtain information about the appeal procedure. This does not affect the appeal period of 30 days.

The proposals are treated jointly by SPHN and PHRT. Correspondence concerning PHRT must be sent to the PHRT Office (phrt-office@ethz.ch), final decisions will be taken by the PHRT Executive Committee.

10. Grant and grant management

10.1 Legal consequences of the award

On the full or partial approval of a grant application (award), the applicants become grantees of SPHN and/or PHRT.

Grantees are obliged:

- To use the grant in accordance with the conditions set out in the funding decision. An expert committee of SPHN and PHRT will accompany the implementation of the project and monitor its progress and alignment with SPHN's and PHRT's goals
- To comply with the provisions stipulated in these Regulations and all other rules applicable to the grant.

The grantees must provide the Management Office 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

and PHRT websites. 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.

10.2 Grant payments

Funds are transferred in annual instalments. The first payment is made upon request by the grantee responsible for correspondence, when all requirements are fulfilled (see 7.5).

Subsequent instalments are subject to approval of the annual project reports (activity & financial reports; attainment of agreed milestones) by the SPHN National Steering Board and the PHRT Executive Committee. Deposition of data in FAIR data repositories is a mandatory requirement for continued funding by SPHN and PHRT.

10.3 Cost-neutral extension of the project

At the grantee's request, SPHN and PHRT may exceptionally extend the grant by a maximum of 6 months (until 31.12.2025 at the latest) without provision of additional funding. The extension must be requested before expiry of the grant period and requires a written justification.

10.4 Monitoring and reporting

Each NDS will be appointed a monitoring board consisting of international and national experts, and DCC and PHRT representatives. During regular review meetings, the monitoring team and at least the main grantee(s) and project manager of the NDS are to discuss the following: 1) progress on the goals and milestones, 2) necessary adjustments to goals, milestones, or other parts of the project plan. Grantees are furthermore expected to collaborate in identifying and planning synergies between different NDS projects to ensure efficient use of resources and to prevent redundancies. Within 14 days after this meeting, the main applicant(s) are to submit a short meeting report to the NSB.

The first monitoring meeting should take place approximately 3 months after the start of the NDS; subsequent monitoring meetings should be no more than 6 months apart.

Main grantees must submit an **annual activity report** to the SPHN Management Office and the PHRT Office no later than 2 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.

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

a. Use of SPHN and PHRT 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 Offices 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 SPHN and PHRT respectively and may not be put to any other use.

10.5 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/PHRT 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/PHRT will hear the parties concerned and communicate the amendment or revocation in the form of a ruling.

A. Appendix

A.1 Table of abbreviations

NDS	SPHN National Data Stream
DCC	Data Coordination Center
DWH	Data Warehouse
ELSI	Ethical-Legal-Social Issues
IAB	International Advisory Board
IP	Intellectual property
IT	Information technology
MO	Management Office
NSB	National Steering Board
PH	Personalized Health
PHRT	Personalized Health and Related Technologies
PPP	Private-public partnerships
SAMS	Swiss Academy of Medical Sciences
SERI	State Secretariat for Education, Research and Innovation
SIB	Swiss Institute of Bioinformatics
SNSF	Swiss National Science Foundation
UH	University hospital

A.2 Glossary

Terms are defined in the Ethical Framework for Responsible Data Processing available at http://www.sphn.ch/.

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 prerequisite for receiving SPHN funding. The amount requested from SPHN must be matched with own contributions by the consortium as a whole.

A signed letter of commitment concerning own contributions (in cash and/or in kind) and adherence to the current valid version of the Ethical Framework for Responsible Data Processing and SPHN Information Security Policy from the host institution’s management should be provided by all applicants requesting

funding from SPHN. In the case that several applicants from the same institution are part of the same NDS proposal, the host institutions may provide one host commitment letter that covers the total amount requested by its applicants. The letter should be signed by a person who is authorized to sign research grants/contracts (authorized legal signatory for research contracts). Depending on the institutional bylaws, it can be the dean, the vice-rector/vice-president or the head of the grants office (see FAQs on http://www.sphn.ch/en/funding.html).

The own contributions must pertain to the scope and main goals of the SPHN initiative and can be provided as in cash or in kind. 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	Only funds that are transferred by the host institution to an account/credit line administered by the applicant are to be considered as cash contributions.
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). A maximum of 20% of a professor's time can be claimed. (2) Earlier investments (e.g., infrastructure platforms) will be reported within the financial report of the first year. SPHN will determine the eligible amount on a case-by-case basis.

Notes:

- *Funds and resources received from competitive infrastructure grants (e.g., cohort studies) are eligible as own contribution provided that they support the goal of SPHN. A commitment letter from the institution shall be provided to confirm that the infrastructure is sustainable and will be used and maintained after the end of the project. Institutions shall decide whether they want to use competitive research grants (e.g., SNSF, H2020) as own contribution. SPHN 2017-2020 grants cannot be considered as own contributions.*
- *A 50% in kind contribution and 50% in cash contribution is welcomed as opposed to matching contributions which are only 100% in kind.*

Table 2 shows the maximum applicable rates for personnel. Applicants should use their institutional salary scale to fill in the budget.

Table 2: Maximum applicable rates for personnel (direct cost and in-kind own contribution)

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

** Including salary, social charges; to be calculated pro rata (20% max. for professors).*