Swiss Personalized Health Network:

Funding Principles 2025-2028

(08.05.2025)

The Swiss Confederation funded the Swiss Personal Health Network (SPHN) initiative from 2017-2024, pursuing the goal of establishing a Swiss network in Personalized Medicine, involving all relevant research institutions in this field. While the two funding periods for the SPHN initiative ended in 2024, the SPHN Data Coordination Center (SPHN DCC) has been planned to be permanently established.

The ERI Dispatch 2025-2028 foresees the implementation of the SPHN DCC under the governance of the Swiss Academy of Medical Sciences (SAMS) as an interim solution in the ERI period 2025-2028. This will allow further clarifications to be made regarding the consolidation and positioning of the SPHN DCC after 2028, also considering other federal processes, such as the federal data strategy.

This document defines the funding principles within SPHN for 2025-2028, providing the basis for the concrete and binding funding regulations.

Summary

For the period 2025-2028, the ERI Dispatch has foreseen a maximum total amount of CHF 20.7 million for the SPHN DCC, subject to the annual budget decisions of Parliament. The SPHN Steering Board is responsible for the allocation and oversight of all SPHN funds. The SERI financing 2025-2028 covers the core services and infrastructures of the network; all additional activities (hosting of projects, further development, upscaling of the network) need to be financed through additional income. The funds from SERI will be used to finance the central Data Coordination Center (DCC), decentralized infrastructure components at hospitals (clinical data platforms), decentralized infrastructure components at higher education institutions (BioMedIT nodes), and support national data repositories (e.g., Swiss Federated European Genome/Phenome Archive (FEGA)). The four National Data Streams (NDS) shall be supported by SPHN with in-kind services for the maintenance of the core NDS, but not with direct financial contributions from SERI funds. Financial contributions by SPHN to projects from SERI funds 2025-2028 are currently not foreseen but shall not be *per se* excluded if the overall financial situation allows it.

Service agreements with the relevant partners shall specify the respective responsibilities. All supported institutions must demonstrate adherence to the data sharing principles between all SPHN partners. The modus for the matching funds principle in 2025-2028 follows the same modus as for the SPHN initiative. The matching funds principle does not apply when a host institution provides a national service for SPHN that does not benefit the respective institution in particular (e.g., operating a national data repository service).

To further support the long-term maintenance and to enable further development and scaling of the central services as well as the services by hospitals, BioMedIT nodes and the Swiss FEGA, additional income will to be sought. This can be achieved through acquisition of additional mandates, third-party funding, collaborations, service fees, and public-private partnerships.

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1 Background on the Swiss Personalized Health Network (SPHN) and its Data Coordination Center (DCC)

The Data Coordination Center, funded by the State Secretariat for Education, Research and Innovation (SERI) in the ERI period 2025-2028, was established as part of the national funding initiative “Personalized Medicine” (SPHN, 2017-2024). The long-term goal of SPHN is to consolidate research data infrastructures for hosting and managing FAIR clinical and health-related data (including -omics data) thereby creating the necessary prerequisite for its efficient (re-)use and integration. During the time period 2025-2028, the goals and tasks of the SPHN DCC will be further refined in agreement with the federal agencies responsible for the “Health” policy area (in particular the FOPH and FSO) and the relevant federal projects (in particular the DigiSanté program). This should lay optimal foundations for implementing the goal of a long-term solution for data coordination in clinical data, omics data and potentially other health data from 2029 onwards

In December 2022 SPHN submitted a report to SERI describing options for a stable continuation of the data infrastructures after 2024. The report was updated in May 2024, specifying how the mandate for the SPHN DCC in 2025-2028 can be implemented under the conditions given in the ERI Dispatch 2025-2028.

2 Federal Funds Available for the SPHN Initiative

For the period 2025-2028 the ERI Dispatch has foreseen a maximum total amount of CHF 20.7 Mio for the SPHN DCC, subject to the annual budget decisions of Parliament. These funds will be allocated as shown in Table 1. The indicative funds allocated to the categories can be adjusted upon justified request to SERI by the SPHN Steering Board.

Table 1: Indicative allocation of federal funds 2025-2028; * Matching funds are required for contributions in categories 2 and 3.

Category and purpose	**Recipient**	**Financial resources (Mio. CHF)**
1. Central Data Coordination Center (DCC)	SAMS	11.7
2. Decentralized infrastructure components at hospitals (clinical data platforms) *	SAMS, to be used according to the Funding Regulations	6
3. Decentralized infrastructure components at higher education institutions (BioMedIT nodes) *	SAMS, to be used according to the Funding Regulations	1.8
4. National data repositories	SAMS, to be used according to the Funding Regulations	1.2
Total		**20.7**

3 Funding Principles within SPHN and for the DCC

The SPHN mandate 2025-2028 focuses on the consolidation of the SPHN DCC as the national competence and coordination/service center for FAIR health data for research, in alignment with the activities of the ETH Domain, the national Open Research Data Strategy and with the activities of the FOPH and FSO (DigiSanté). Also, SPHN is mandated to further develop the goals and governance of SPHN and the DCC in view of a new structure in 2029-2032.

The importance of continuing SPHN and its DCC in the transitory phase of 2025-2028 has been confirmed by all the stakeholders. However, the ERI Dispatch can account only for approximately 40% of the costs the National Steering Board originally estimated, and the search for additional in-cash funds from the network partners has remained unsuccessful. Therefore, SPHN's core financing 2025-2028 only covers its essential core services and infrastructures; all additional costs (hosting of projects, upscaling of the network, or further development of central services and services at hospitals, BioMedIT nodes, and the Swiss FEGA) will need to be financed by additional income from attributable service-related costs and additional mandates and other collaborations (Figure 1).

The essential services and infrastructures to be ensured by SPHN during 2025-2028 focus on the national coordination for FAIR health data for research (and interfaces to ORD, DigiSanté, industry, international initiatives, etc.), interoperability, data exploration capabilities, legal and ethical frameworks for efficient and compliant federated or centralized data sharing ('open access'), education and training, access to a Trusted Research Environment (TRE) via BioMedIT, provisioning of standardized real-world data to the four National Data Streams and to approved research projects ('open access'), and a FAIR omics data repository (Swiss federated EGA).

SPHN, its DCC, and BioMedIT should not be considered a single central structure but a network with nodes and interfaces to the hospitals. The university hospitals have committed to maintaining their clinical data platforms—under certain conditions. Notwithstanding this highly valued matching contribution by UHs, an additional layer of decentralized SPHN DCC infrastructures and services at hospitals, dedicated to national interoperability and interfaces, needs to be maintained and further financed by the SPHN DCC. The same is true for the BioMedIT nodes, who also invest institutional resources in TRE infrastructure. This requires a distributed financing concept via the SPHN DCC.

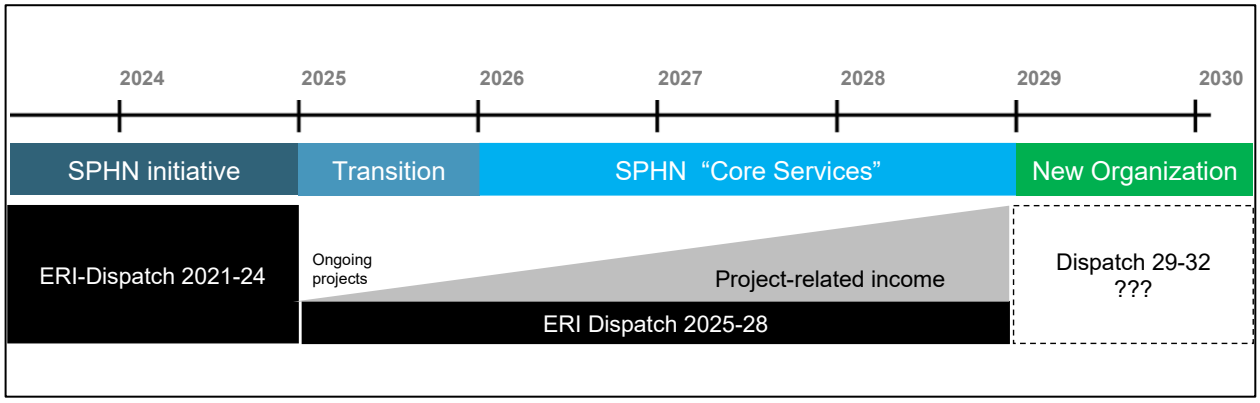
The SPHN Steering Board is responsible for the allocation and oversight of SERI funds 2025-2028. Service agreements with the relevant partners shall specify the respective responsibilities. All supported institutions must adhere to the current valid version of the SPHN Ethical Framework for Responsible Data Processing, the SPHN Semantic Interoperability Framework and the SPHN Information Security Policy, and commit to data sharing principles and third-party reuse of data. Access to pseudonymized and anonymized data shall be guaranteed for all SPHN partners and granted, without profit, at cost (remuneration of costs related to data recruitment) by partner institutions. These conditions must be abided to by SPHN partner institutions to receive funding from SPHN.

The modus for the matching funds principle for the SPHN DCC follows the same modus as for the SPHN initiative: Federal funds received by hospitals and BioMedIT nodes for local infrastructures that synergize with national services must be earmarked for well-specified national purposes and must be matched with own contributions in the same amount. These own contributions can be provided in the form of UH- or HEI-employed personnel dedicated to support the mission of SPHN and UH/HEI infrastructure used for this purpose. The matching funds principle does not apply if a host institution provides a national service for SPHN

that does not benefit the respective host institution in particular (e.g., operating a national data repository service).

The multi-stakeholder governance structure for SPHN and the DCC is managed by SAMS, as defined in the ERI Dispatch 2025-2028. SAMS continues the collaboration with the SIB Swiss Institute of Bioinformatics for the operation of the technical layer of the SPHN DCC. A service agreement between SAMS and SIB specifies the roles and responsibilities of this collaboration. The financial flow follows the governance structure: SERI will provide funds from the ERI-Dispatch 2025-2028 to SAMS, under the responsibility of the SPHN Steering Board, and administered by the SPHN DCC Managing Director/Office. The Steering Board makes decisions about the financial allocations and respective collaboration/service agreements with all partners. The Steering Board also monitors all income from additional mandates, collaborations and projects and allocates these funds to the partners according to the efforts needed and a formula to be agreed on. The SPHN Managing Director at SAMS is responsible for controlling (including matching funds where applicable) and reporting to the Steering Board and SERI.

Figure 1: Financing concept 2025-2028



4 Core services of SPHN in 2025-2028

4.1 Overview

The infrastructures and services described below should be seen as a starting point, preserving the essential components in view of further adaptation depending on the community's needs and funding opportunities. The same applies for the organizational structure that aims to optimally distribute tasks and activities between the central coordination unit and the federated units (e.g., hospitals, BioMedIT nodes). The distribution of SERI funds between the partners shall be based on the respective partners' tasks and services provided for the national efforts and shall be regularly reviewed. Alignment with interfacing service providers, such as SDSC+ and ORD-related infrastructures, is essential to leverage synergies and avoid duplication of efforts. Further scaling of SPHN's and the DCC's services needs to be financed by additional funds.

The core services and infrastructures to be ensured by SPHN and the DCC during 2025-2028 are:

- National coordination for FAIR health data for research (and interfaces, including ORD, DigiSanté, industry, international initiatives, etc.);
- SPHN Semantic Interoperability Framework (standards, data schema, tool stack and support services);
- Federated Data Exploration and Analysis System (SPHN DEAS) (feasibility queries and data exploration over the entire SPHN Dataset over at least 5 UHs);
- Legal and ethical frameworks for efficient and compliant data sharing ('open access');
- Training and education on SPHN-related aspects;
- Trusted Research Environment (BioMedIT nodes, security policy, tool stack, services, interoperability);
- Provisioning of standardized (according to the SPHN Semantic Interoperability Framework) real-world data to the four National Data Streams and to approved research projects ('open access');
- FAIR data repositories, including Swiss Federated EGA.

The initial task distribution is depicted in table 2 and described in more detail below.

Table 2: Distribution of core services and infrastructures of SPHN over central services (DCC), hospitals, and BioMedIT to be guaranteed during 2025-2028

Central infrastructures and services (DCC)	**Hospital infrastructures and services**	**BioMedIT infrastructures and services**
- Federated Data Exploration and Analysis Systems (DEAS) - SPHN FAIR Data Tool Stack - BioMedIT Information Security Policy - BioMedIT Central Services & tools - BioMedIT helpdesk. - Legal and ethical frameworks - Education and training - National working groups - Central management	- Implementation of new SPHN Schema releases - Operation and data loads of the Data Exploration and Analysis Systems (DEAS) - Data provisioning to the four NDS - Basic data provision to approved research projects ("data as a product", coordinated via central SPHN DCC)	- Interoperable federation of a national Trusted Research Environment (TRE) - Operating the Swiss node of the federated European Phenome-Genome Archive (FEGA) - B-space services for NDS and approved research projects. - Data management for sensitive datasets. - Research Support.

4.2 Central infrastructures and services

Table 3 lists the relevant infrastructure components and services under the responsibility of the central SPHN DCC. Infrastructure components and services in grey are deemed optional and shall be (de-)prioritized in agreement with the network partners and depending on the availability of resources. The total amount of SERI funds 2025-2028 foreseen for the DCC is CHF 11.7 Mio, without a requirement for matching funds (see table 1).

Table 3: Central infrastructure components, services and working groups (under the responsibility of the central SPHN DCC. Detailed information on all DCC tools and services can be found on the following websites: https://www.biomedit.ch/home/tools-and-resources.html; https://sphn-semantic-framework.readthedocs.io/en/latest/. Abbreviations: DEAS, federated Data Exploration and Analysis System; HIT-STAG, Hospital IT Strategy Alignment Group; WG, working group; RDF, Resource Description Framework.

Metadata catalogs and Data exploration tools: **-** Federated Data Exploration and Query Systems - SPHN Metadata catalog - Maelstrom Catalog of Swiss longitudinal cohort studies	**SPHN FAIR Data Tool Stack** Infrastructures: - SPHN Connector - SPHN Schema Forge - SPHN Schema Scope - Mock-data generator - Terminology server and service - Graph component of the DEAS (Einstein) **Services**: - Tool stack product ownership, maintenance and operation - FAIR data support - Interoperability strategy planning - Trainings on FAIR data	**BioMedIT Tool Stack** Infrastructures: - Secure encryption and transfer tool (sett) - BioMedIT Portal - BioMedIT Identity and Access Management (IAM, KeyCloak) - Logging and Monitoring applications (OpenSearch, Wazuh and Prometheus) - BioMedIT Training Platform - Container Registry - GitLab - Confluence **Services:** - Tool stack product ownership, maintenance and operation - Data provider and researcher support, helpdesk operation - Information security maintenance - Information Security & Data Privacy training.
Coordination for hospital-internal infrastructures implementations - Semantic WG - RDF WG - DEAS implementation meetings	**BioMedIT Working Groups** - BioMedIT Interoperability and Development WG (BIWG) - Security WG - RDF support WG	**Legal and ethical support** - De-identification framework - SPHN templates for data sharing: maintenance and customer support - Legal negotiations as well as contract development and management in national and international multi-site projects and data sharing framework agreements
Central management - Operations/HR/Finance/Legal - Communication - Project administration - Project management support		

4.3 Infrastructures and services provided by university hospitals

Equally important as the central components is a layer of infrastructures and services at hospitals, dedicated to the national efforts of data findability, accessibility, interoperability, and reusability. Without this layer, data would largely remain siloed for local research activities.

All five university hospitals (CHUV, HUG, Insel Group, USZ, USB) are committed to further maintaining and developing their local clinical data platform (data warehouse or data lake) for internal use at their own expense; hence, hospital data will remain available beyond the SPHN initiative. The essential infrastructure components, UH data products, and SPHN services that are required for the national network on top of the local structure are listed below (these need to be supported with SPHN DCC resources).

As during the SPHN initiative, the SPHN DCC shall establish collaboration or service agreements with its partners, in which the services and infrastructures that the partners are to provide are defined and the deliverables and financing to be guaranteed are described. A participative process will be established with the partners (e.g., for UH, the HIT-STAG representatives shall be involved) to regularly review and adapt the distribution of tasks and their respective deliverables and funding.

Tasks of the university hospitals as part of the SPHN DCC core infrastructures and services are:

i. **Implementation of new SPHN Schema releases (SPHN Semantic Interoperability Framework)**
   - UH maintains the data quality and standardization efforts needed to implement the latest version of the SPHN Dataset and RDF Schema and deliver data accordingly.

- A process will be developed jointly with data providers, data users, and the central SPHN DCC to stepwise update and extend the SPHN Dataset and RDF Schema based on clients' needs and available resources in a sustainable way.
- UH actively contributes to the further development and extension of the SPHN Dataset and RDF Schema in collaboration with the central SPHN DCC.

ii. Operation of the Federated Data Exploration and Analysis System (SPHN DEAS)

- UH maintains and operates the SPHN DEAS and regularly loads data according to the latest version of the SPHN Schema for all SPHN Dataset concepts and all patients with a signed general consent.
- User access to the SPHN DEAS as regulated by the Federated Query System Institutional Collaboration Agreement, of which UH is a signatory. This agreement may evolve in view of additional types of features developed in the SPHN DEAS.

iii. Data provisioning to the four National Data Streams (NDS)

- UH maintains and operates the data delivery pipelines including the SPHN Connector and the interface to BioMedIT through its secure encryption and transfer tool (sett).
- UH provides the four NDS with all data according to the agreed final project RDF Schemas and cohort definitions.

iv. Data provisioning to approved research projects

- In this context, the concept "data as a product" encompasses standardized data available from the UH clinical data platform according to the latest version of the SPHN Dataset and RDF Schema. Such data should be readily provided via an end-to-end architecture (from feasibility studies to data delivery), including the SPHN Connector, sett and BioMedIT interfaces in a time- and cost-efficient manner.
- UH administers research applications/data access requests for multisite or UH-external projects via its internal data governance board.
- UH provides data to approved research projects within the scope of the latest version of the SPHN Dataset and RDF Schema of patients with signed General Consent, without a local PI.

Based on SERI's and the ERI actors' national and international Open Access strategies, data in scope of SPHN will be provided to UH-external researchers, also without a local investigator, if the legal and ethical requirements are fulfilled.

The following infrastructures and services are **out of scope of the SPHN core services and infrastructures** (these are to be financed through new project funds or other resources):

– Integration of new data sources into the clinical data platforms beyond the SPHN Schema.
– Definition and modelling of new concepts for specific research projects.
– General data provision to local projects (i.e., projects within the UH without external collaborators) as well as projects outside the scope of SPHN.
– Research Data Service Management.
– Basic clinical research services, including general consent management.
– Project management and coordination.
– Maintenance of local clinical data platforms (UH agreed to maintain these for their own purposes).

The total amount of SERI funds foreseen for hospitals in the period 2025-2028 is CHF 6 Mio (see table 1). The matching funds principle applies in the same way as during the period 2017-2024. Each hospital shall match the federal funds it receives with own contributions in the same amount. These own contributions shall be provided in the form of hospital-employed personnel dedicated to support the mission of SPHN and hospital infrastructure used for this purpose. In-kind contributions by hospitals require a clear description of the tasks and personnel that contribute to the SPHN core services and infrastructures.

4.4 Infrastructures and services provided by BioMedIT nodes and their host institutions

The mandate from SERI includes guaranteeing all researchers from Swiss HEIs access to the Trusted Research Environment (TRE) BioMedIT. During the transition phase in 2025 and the subsequent years up to 2028, the BioMedIT network shall be consolidated and optimized. This includes technical optimization, clarification of governance (accounting for interfaces and potential partners including universities, ORD, hospitals, FOPH, FSO, SDSC+, SIB, etc.), development of a reimbursement mechanism through projects and mandates, and targeted technical embedding into the national data infrastructure after 2028. The following dimensions shall be considered:

- Strong commitment from host institutions to contribute to a national node accessible to all researchers from Swiss HEIs.
- Optimal number of nodes needs to be established. At least 1 node must be guaranteed
- Landscape is dynamically developing nationally (e.g., SWITCH cloud) compliances to latest BioMedIT Information security policy, Swiss Data protection ordinances and interoperability (with SPHN partners) needs to be ensured.
- Reimbursement scheme/business plan needs to be established.
- Local nodes (also aiming for national projects/interoperability) are emerging, scaling strategy needs to be established.
- Embedding into the National ORD Strategy needs to be established, considering sensitive data also outside of the health domain.
- Interfaces and shared benefits with FOPH, EQK, FSO.
- Hosting of B-spaces for national data streams (NDS) and approved projects.

The total amount of SERI funds 2025-2028 foreseen for BioMedIT nodes is CHF 1.8 Mio (see table 1). The matching funds principle applies in the period 2025-2028 in the same way as during the period 2017-2024. Each BioMedIT node shall match the federal funds it receives with its own contributions in the same amount. These own contributions shall be provided in the form of node-employed personnel dedicated to support the mission of SPHN and node infrastructure used for this purpose. In-kind contributions by BioMedIT nodes require a clear description of the tasks and personnel that are contributing the services from the node.

4.5 Swiss federated European Genome-Phenome Archive (Swiss FEGA)

A Swiss national node for the federated European Genome-Phenome Archive (FEGA) is planned to be established by the end of 2025 as part of the BioMedIT project. Swiss FEGA will be a national repository for human genomic and other omics data connected to the European FEGA research infrastructure network. Led by SIB, a consortium further including ETH Zurich Scientific IT Servies (ETH: SIS), Health 2030 Genome

Center, Switch, Swiss Data Science Center (SDSC) and ETHZ Nexus is responsible for Swiss FEGA. Key features and benefits of the node include:

– Secure storage and management within Switzerland of sensitive human omics data at scale.
– Accessibility ('as open as possible') for Swiss researchers to omics datasets in the FEGA repository
– Compliance with Swiss legal requirements.
– Compliance with research funders' requirements regarding Open Research Data.
– Accessibility for Swiss researchers to the FEGA network, resources, and omics data sets from participating countries (currently Finland, Germany, Sweden, Norway, Spain, Portugal, Poland, Estonia).
– Opportunity for Switzerland and Swiss stakeholders to engage in activities of EGA and the European Genomic Data Infrastructure (GDI) (https://gdi.onemilliongenomes.eu/).

The further maintenance of the Swiss FEGA node is planned to be partly supported by SPHN with SERI funds 2025-2028 of up to CHF 1.2 Mio (see table 1). The matching funds principle does not apply if a host institution provides a national service for SPHN that does not benefit the host institution.

4.6 National Data Streams (NDS)

The four NDS established during the SPHN initiative in 2021-2024 are envisioned to serve the Swiss health research community in the long term. The responsibility for maintaining the NDS lies with the respective consortium. While no direct financial contributions from the SERI funds 2025-2028 are foreseen, SPHN shall support the NDS in kind as follows:

– Maintenance of the SPHN DCC service and infrastructure portfolio as the technical basis for NDS.
– Support by the DCC for the maintenance of joint data infrastructures for the NDSs. Project-related support by DCC may require contribution from project funds.
– Provision of data deliveries by SPHN-supported hospitals to the NDS according to the agreed NDS Project Schema and cohort definitions.
– Hosting of the NDS main B-space (but not additional B-spaces, e.g. for lighthouse or nested projects) covering at least the base package services.

In return, NDS have to make their data accessible to third parties and describe it with detailed metadata in the SPHN Metadata Catalog.

4.7 Project funding

Financial contributions from SERI funds 2025-2028 to new projects are currently not foreseen.

5 Additional income from projects, collaborations and mandates using the services and infrastructures of SPHN

To further support the long-term maintenance and to enable further development and scaling, SPHN needs to seek additional sources of income. The following potential financing streams shall be pursued by the DCC and network partners:

– Acquisition of additional mandates that synergize with SPHN's mission and that can leverage the SPHN infrastructures and services. The respective work needs to be financed by the mandating party.

– Acquisition of third-party funding through research infrastructure grants or similar programs (including international programs).
– Collaboration with research (infrastructure) consortia in joint applications for third-party funding.
– Service fees for the use of SPHN infrastructures, services, consulting, or data provision. An alignment with funders will be sought to define eligible costs for research grants.
– Public-private partnerships with, for instance, pharmaceutical companies.

All additional income generated in relationship to SPHN is overseen by the SPHN Steering Board, which is responsible for the allocation of respective funds to tasks and partners. A fair distribution between the SPHN partners must be ensured to achieve long-term sustainability of the network and its infrastructures and services.