

# Collaborating across Cantons: Building infrastructure to enable use and exchange of interoperable health data for research

The Swiss Personalized Health Network (SPHN)

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A project of

October 2020

# Switzerland (Schweiz / Suisse / Svizzera / Svizra)

8.5 Million inhabitants  
Confederation with 26 cantons

5 University Hospitals  
281 Hospitals total

Public, private and subsidized  
healthcare providers

7 Cantonal Ethic Committees

Languages:

- German (62.6%)
- French (22.9%)
- Italian (8.2%)
- Romansh (0.5%)

National law: Human Research Act  
Cantonal Data Protection Laws

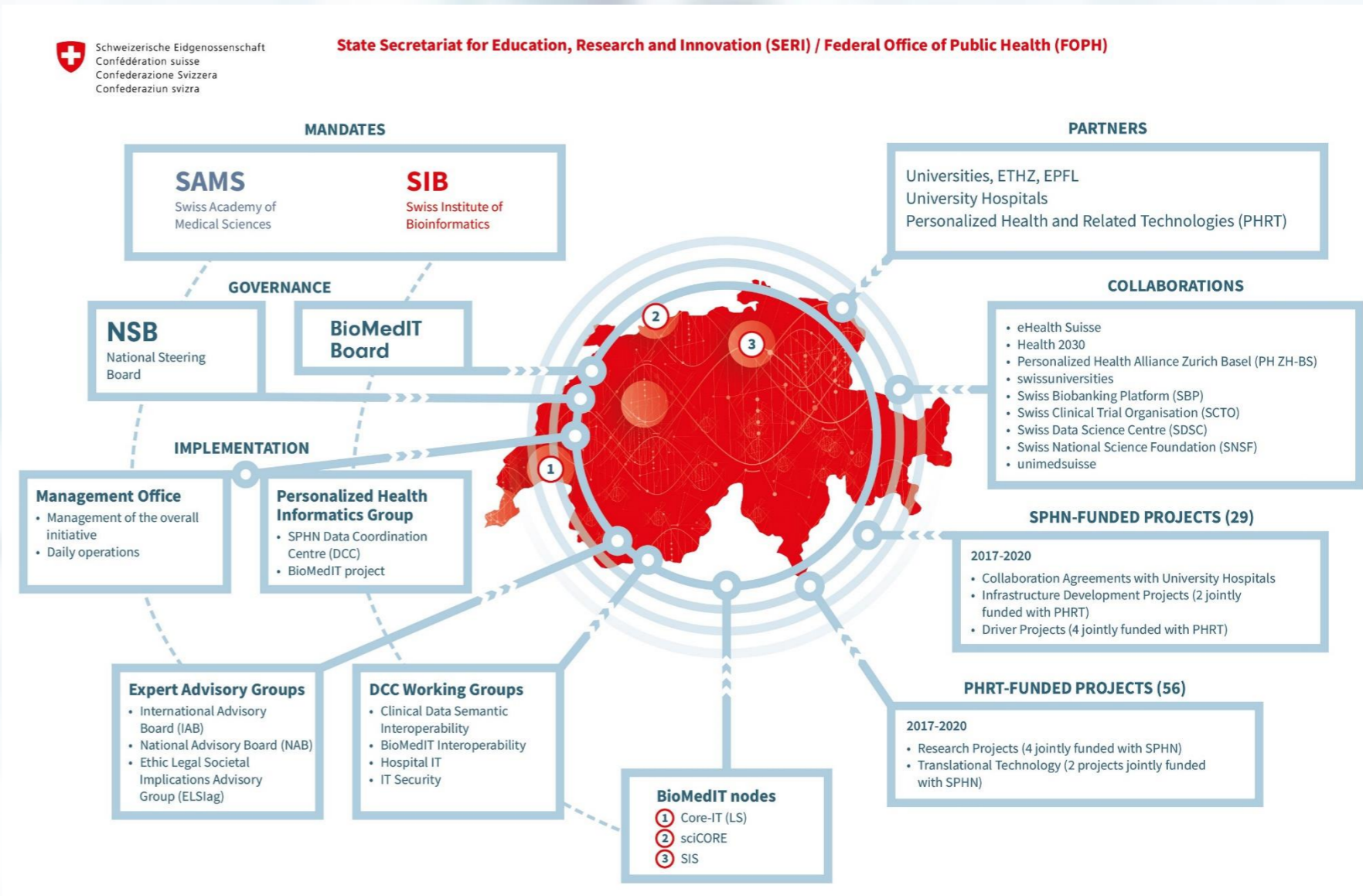
Broad Consent

# The Swiss Personalized Health Network

Government funded initiative:

- 2017-2020: focus on University Hospitals
- 2021-2024: consolidate and expand

Building coordinated infrastructures to **make health data interoperable and shareable** for research in Switzerland



# Streams for data-driven biomedical research and Personalized Health

## Data from health care institutions

Routine data and specific routine data (e.g. diagnosis, medication, demographics, imaging data)

## Clinical research data, cohort, registry data

High-quality patient-oriented health data

## Molecular or \*omics data

Genomics, transcriptomics, proteomics, metabolomics, DNA methylation, etc.

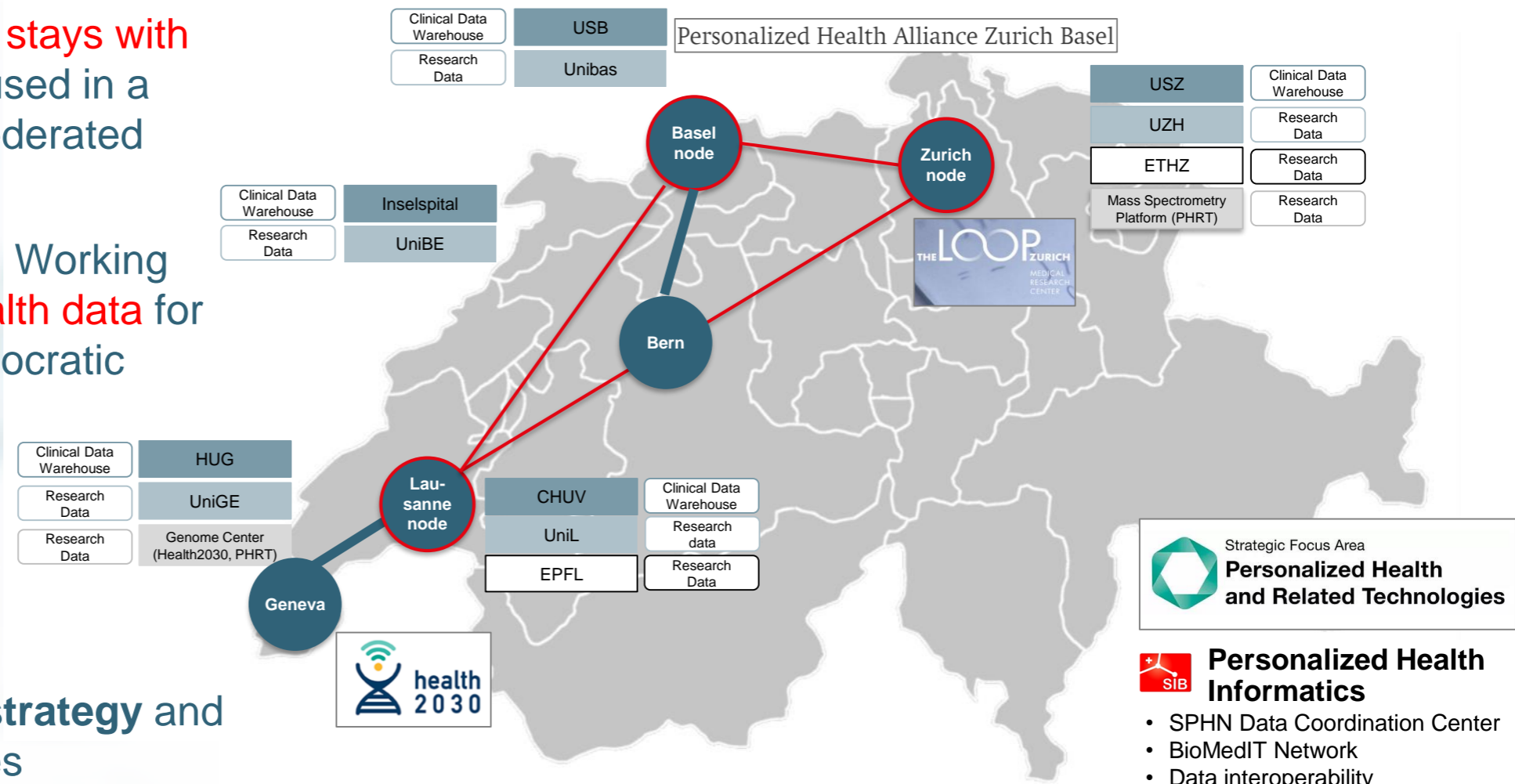
## Healthy citizen data

Citizen/consumer health data, lifestyle data, social media data, wearable devices, etc.



# Regional actors: Data Providers, Data Users and Clusters

- A decentralized approach: No central data lake. **Data stays with the data providers** and is used in a project-specific manner; federated query
- Getting data out of silos: Working towards a **FAIR use of health data** for research, and a more democratic access to data
- Building, connecting and aligning systems: Establishing a **national infrastructure network**
- Central interoperability strategy and harmonization of processes



Strategic Focus Area  
**Personalized Health and Related Technologies**

- Personalized Health Informatics**
- SPHN Data Coordination Center
  - BioMedIT Network
  - Data interoperability
  - Information Hub & Training

# SPHN Infrastructure components



**Make clinical (routine) data sharable for research:** Development of research data management systems at the 5 Swiss university hospitals



**Bottom-up infrastructure establishment** throughout the country: Driver Projects and Infrastructure Developments Projects selected through open calls



**Tackling horizontal integration:** FAIRification of omics data, cohort and registry data, data life-cycle management



**The BioMedIT network:** A national infrastructure resource for confidential research data, on a network of secure HPC clusters

# How to bring it together?

## Individuals:

- Sign a general (broad) consent

## Data provider/gatekeeper:

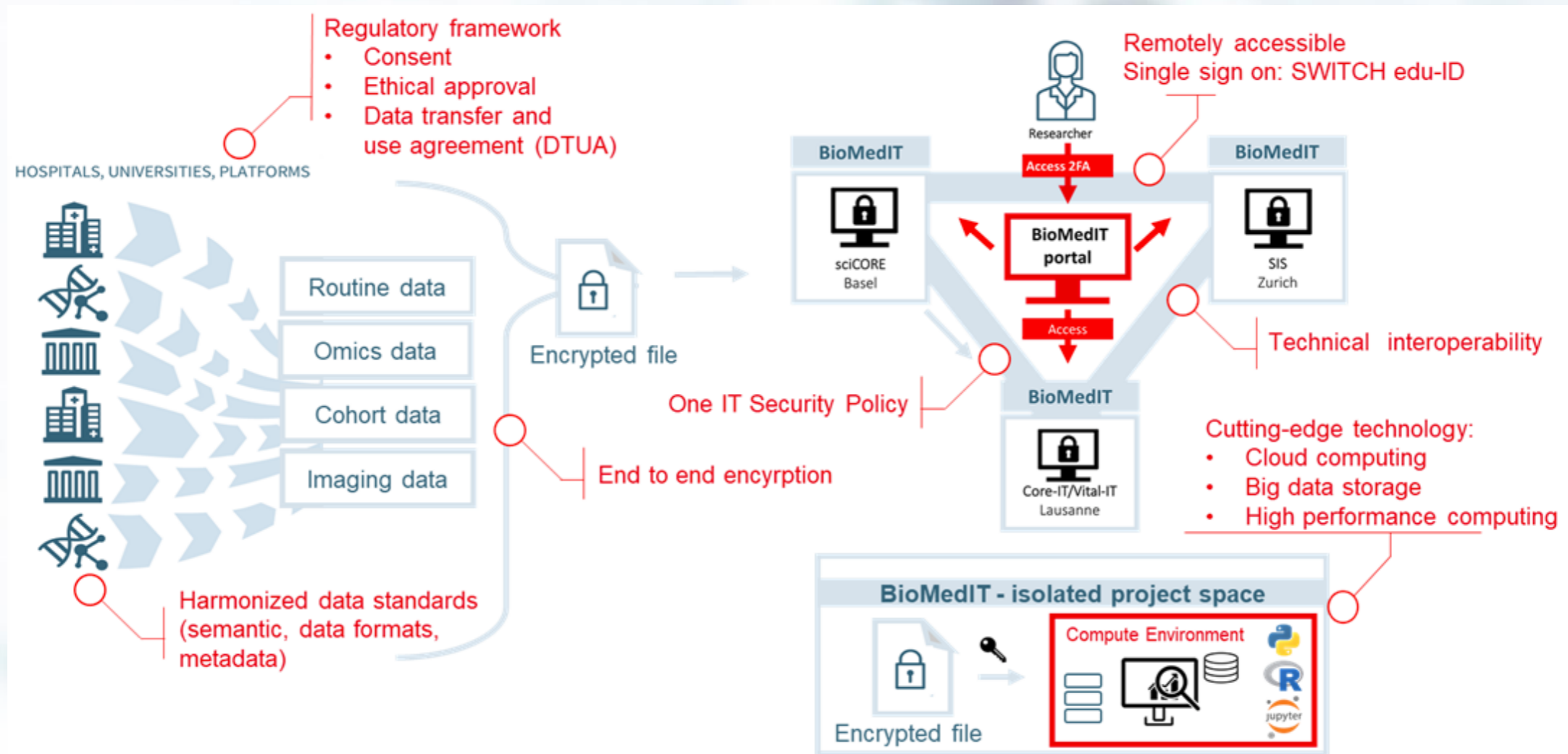
- Address / clarify governance
- Stabilize legal architecture; development of national templates for Consortia Agreements, Data Transfer and Use Agreements, Processing Agreements, etc.
- Process Innovation: Adapt procedures and frameworks to new developments, share best practices and solutions

## Regional/national efforts:

- Federate where possible, gather where necessary
- Connect the partners: UH, PHRT Technology platforms, Biobanking (SBP), Clinical research (SCTO/SAKK), Funders (SNF), etc.
- Provide a secure and protected environment for secure transfer, storage, management and processing of confidential research data (BioMedIT)



# BioMedIT: Lowering computational boundaries





# Healthcare and research must go hand in hand in the digital learning healthcare system of tomorrow

Biggest challenges:

#Scalability

#Sustainability

#Security

#CulturalShift

## Acknowledgements:

Sabine Österle

Shubham Kapoor

Jan Armida

Martin Fox

Kristin Gnodtke

Mirjam Mattei

Julia Maurer

Michael Müller-Breckenridge

Christian Ribeaud

Vasundra Touré

**Teams of the BioMedIT nodes**

**SIB teams**

# Thank you for your attention

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