University
of Basel

A Swiss perspective on open data initiatives

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A Swiss perspective on open data initiatives

Success stories, opportunities, and challenges in six examples:

Life Science Research

      wwPDB – worldwide Protein Data Bank

      UniProt / Swiss Prot – human curated refence catalogue

      Sharing Personal Health Data for research (SPHN)

Digital Humanities

      DaSCH - Data & Service Center for the Humanities

      NIE-INE - National Infrastructure for Editions

      FORSbase - National Infrastructure for Social Sciences

Life Sciences

The "posterchild": wwPDB worldwide Protein Data Bank

Since 1971, the Protein Data Bank archive (PDB) has served as the **single global repository** of information about the 3D structures of proteins, nucleic acids, and complex assemblies.

Mission: Sustain a freely accessible, single global archive of experimentally determined structure data for biological macromolecules.

Manage the PDB archive as a public good according to the FAIR Principles.

Structure
Perspective

Cell PRESS

How Community Has Shaped the Protein Data Bank

Helen M. Berman,[1,*] Gerard J. Kleywegt,[2] Haruki Nakamura,[3] and John L. Markley[4]

http://www.pdb.org
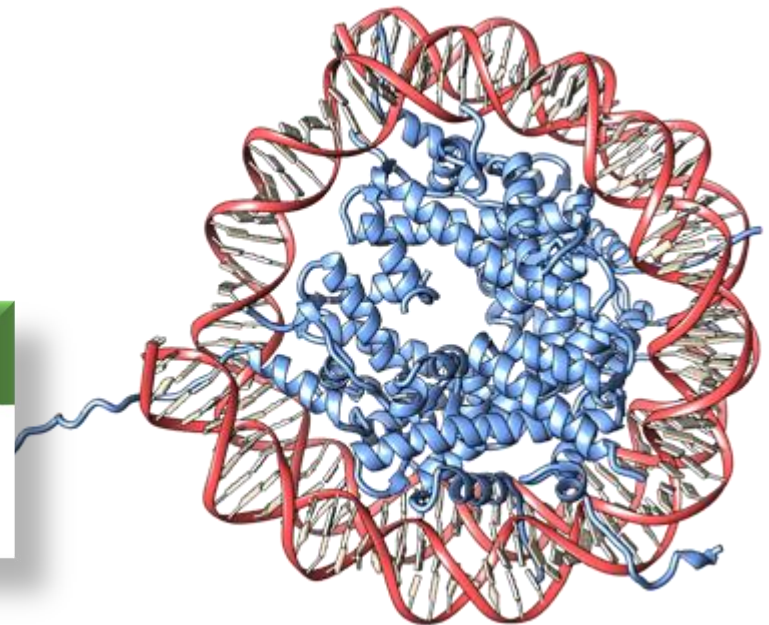
The authoritative encyclopedia: SwissProt - UniProtKB
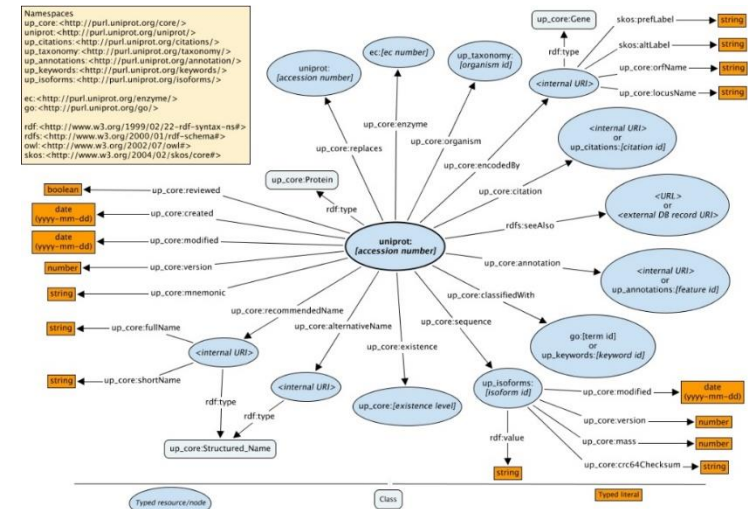
UniProtKB / Swiss-Prot is a **high quality** annotated and non-redundant protein **knowledgebase**.

Authoritative **reference system** for linking and structuring the information in the protein knowledge space.

Manual annotation and data curation by highly trained experts is key to high data quality.

http://www.uniprot.org

The Challenge:
Sharing Personal Health Data for research (SPHN)

The main goal of the SPHN initiative is to bring Switzerland at the forefront of **personalized health research** by establishing **nationwide interoperability of biomedical information.**

Image: © https://iddcr.com/?page_id=12154

http://www.sphn.ch

The Challenge:
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The main goal of the SPHN initiative is to bring Switzerland at the forefront of **personalized health research** by establishing **nationwide interoperability of biomedical information.**

Ethical, Legal and Social Implications.

Informed consent

Semantic interoperability.

Information security and data protection.

http://www.sphn.ch

Social Sciences and Humanities

DaSCH: Data & Service Center for the Humanities

Challenge: preserving

qualitative research data

(e.g. images, movies, annotations)

from the Humanities for re-use.

Service needs to account for **specific research**

culture in humanities and **multi language** setting.

FAIR principles to ensure reusability of qualitative data:

Data linking (RDF, ontologies), version history and citability

(persistent identifiers) and interoperability of digital objects.

http://www.dhlab.unibas.ch/dasch

NIE-INE: National Infrastructure for Editions

Interface and data modelling for editions must be available in the Swiss national **languages** (German, French, Italian) and in English.

Objects of the editions cannot be subject to linguistic restrictions.

Scientifically agnostic: The research approaches and workflows depend on the needs of the individual edition projects.

The technology on which NIE-INE is based (RDF) supports LOD

Stakeholders decide on the data's actual accessibility

FORSbase: Social Science Data

FORS
explore.understand.share.

A digital repository and archive for **social sciences research data** in Switzerland.

Standard process for managing research information and data life cycle. Based on open source technologies, OASIS and FAIR compliant.

Open Science:
great principle – but impossible to implement as such in the social sciences due to **data protection laws**.

FAIR data for social sciences needs made-to-measure solutions
to satisfy the data producer, the data user, and
data protection laws

http://forsbase.unil.ch

Summary and Conclusiones

- **Community engagement is key – user community needs must drive the development to be successful.**

- **Social aspects and research traditions are as important for success as robust technical implementations.**

- **Lead the field by working with pioneers – many users are not yet fully aware about new opportunities**

- **Data quality relies on human expertise for data curation – which is largely incompatible with research infrastructure / service funding models in Europe.**

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Thank you
for your attention.