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CIÊNCIA, CULTURA E DESENVOLVIMENTO | 1962 - 2022

São Paulo Research Foundation

Open Science and FAPESP initiatives

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Open Science - main underlying principles for funders

- Science is a public good

- Outputs of publicly financed research are a public good and must be made public as soon as possible, while respecting the principles of scientific ethics, privacy and security, as well as protection of intellectual property

Open Science (summing up of main concepts)

- Advance production of knowledge through scientific collaboration without boundaries (geographical, temporal, cultural)
- Enable collaboration by supporting openly sharing all processes and results of a research project
- **Collaboration and sharing** implemented by funders - at least 3 dimensions
  - Establish policies (and monitor them)
  - Support computational infrastructure (networks, software, hardware)
  - Educate and train people (cultural change)
- **As open as possible, as closed as necessary** (ethical and legal constraints)

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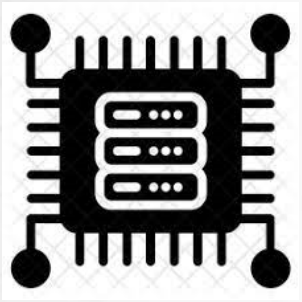
Open Science = how to implement computationally

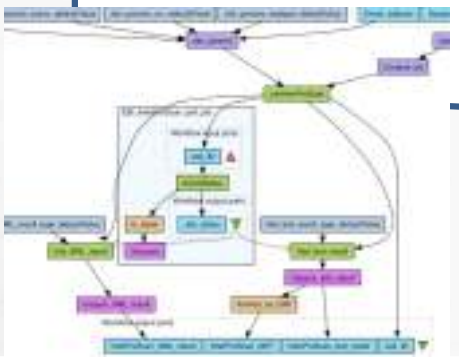


Hardware specifications

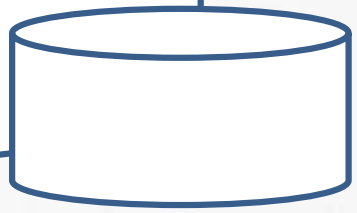
Publications
Documentation

All "results and processes" of scientific research
Available in public repositories

For SHARING AND REUSE



Software, code



Data

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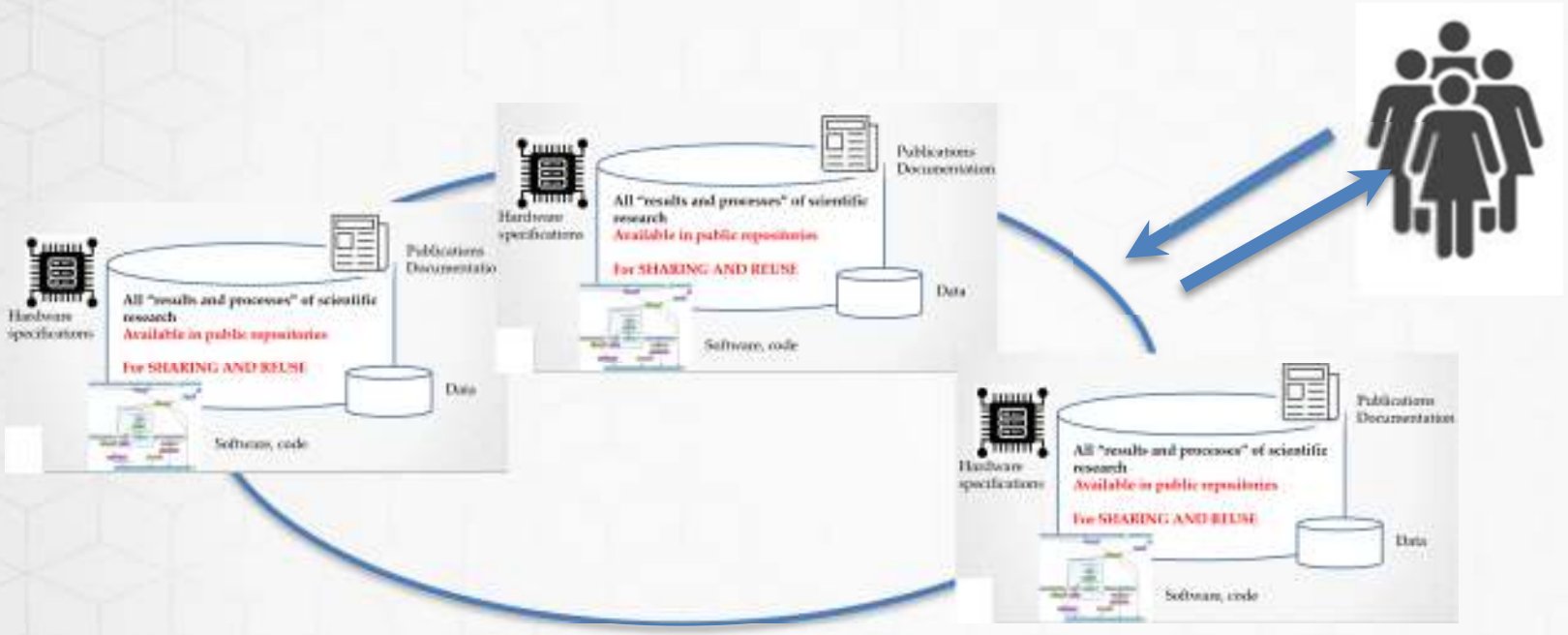
Overall scenario



People
Are
The
Key

Internet

FAPESP – Collaboration and Sharing in Research

Code of good scientific practice (2005)
https://fapesp.br/boaspraticas/

3.3. On the recording, storage and accessibility of data and information

3.3.4. After the results are published, the research records must be made available to other researchers who may want to verify the study's correctness or replicate or continue the study. Accessibility may only be limited for ethical or legal reasons.

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Fapesp and open access

Scielo – repository of open access journals

- since 1998, started as FAPESP research infrastructure project
- Scielo Brazil = 308 periodicals, 1 million unique downloads/month (total 450,000 articles)
- Scielo network – 16 countries, 1250 journals, 51K new articles per year
- Presently, Scielo data and Scielo open peer review

FAPESP Open Access policy (published 2019)

the complete texts of articles and other types of scientific communication originating in research projects fully or partially funded and published in international journals must be posted to institutional repositories of scientific papers in accordance with the open-access policy of each journal.

Maximum 12 month embargo

Network of institutional repositories of scientific papers

(2015, managed by each university)

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FAPESP and Open Data

Compulsory data management plans on all proposal submissions (average 20K proposals a year) – 2017 (Second largest Dmptool user community is from Sao Paulo, after US universities)

Specific instructions for DMPs for research centers - 2021

Coordinated creation of state network of open research data repositories (all 7 public universities, 48 campi, over 200K researchers) – 2019

COVID19 DataSharing/BR Data Repository – launched June 2020, data on 800 thousand patients (demographics, exams), with over 50 million exam records.

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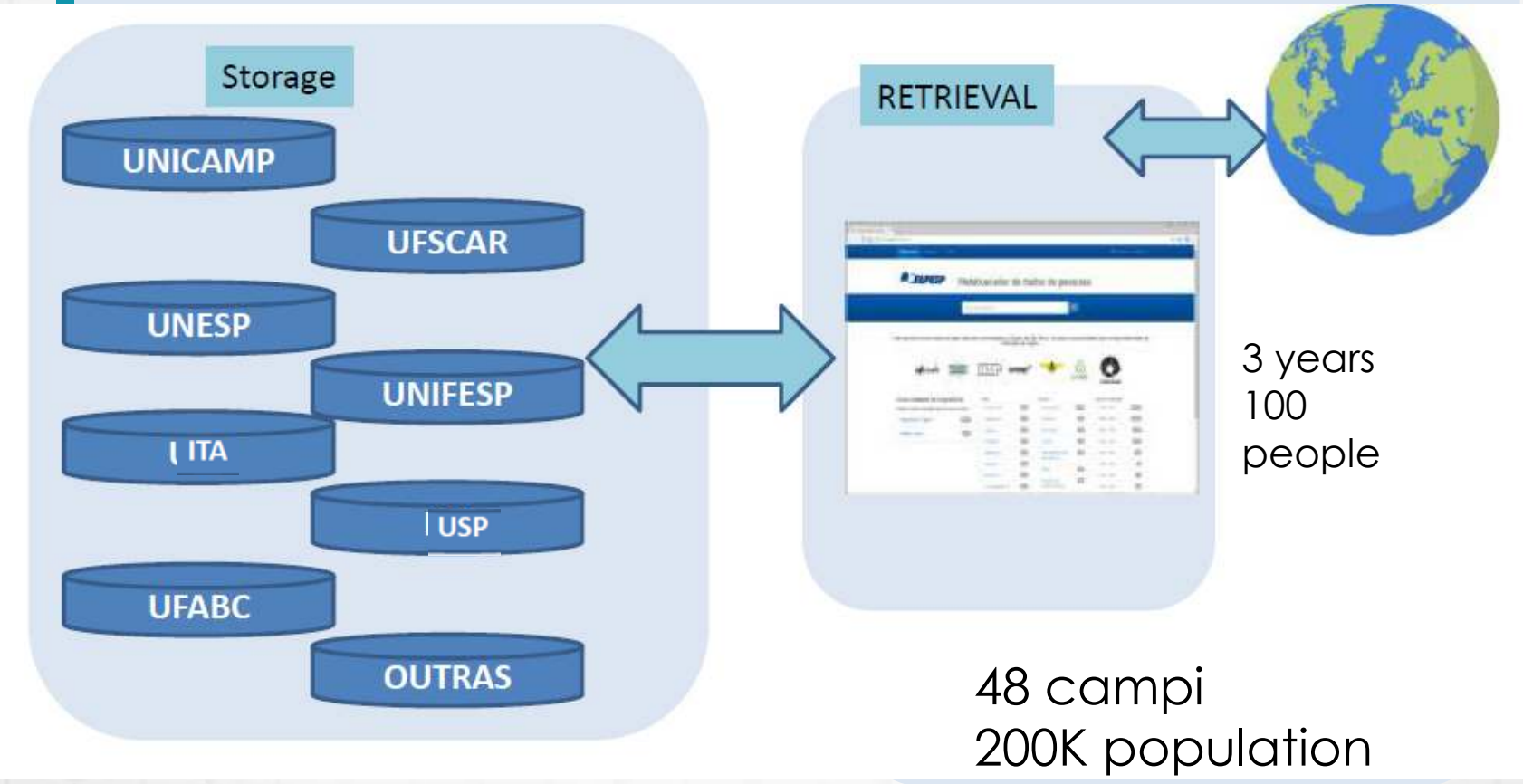
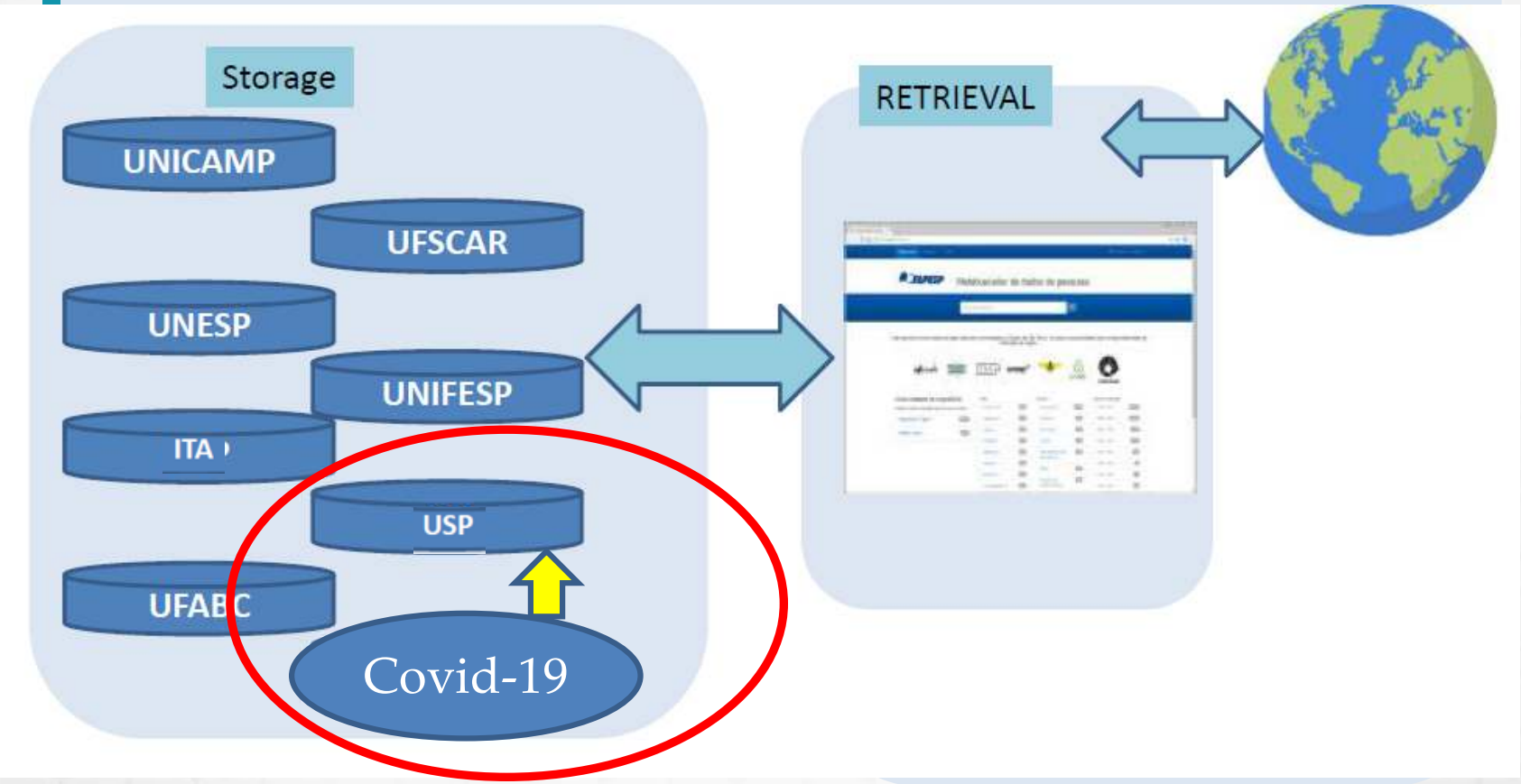
SP Open Research Data Repository Network

- Federation of repositories, single harvester portal
- **OPEN BY DESIGN**

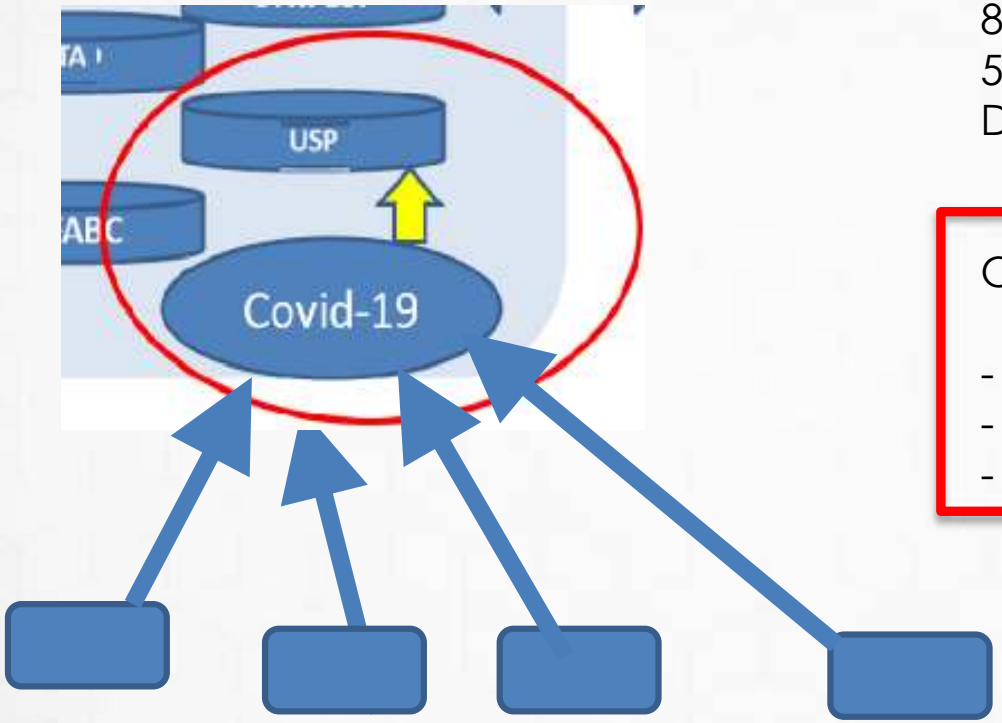


SP Open Research Data Repository Network

- Modular and extensible



https://repositoriodatasharingfapesp.uspdigital.usp.br/



Data providers – health institutions

800.000 patients
50 million clinical records
Downloads from 36 countries

OUTCOMES OF DATA REUSE

- Health-related research
- Computing research
- Innovation and products

Selected, pseudonymized data
Patients, exams, primary endpoints

"HIPAA-compliant"

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GrupoFleury · SÍRIO-LIBANÊS · ALBERT EINSTEIN · HC · bp

FAPESP and open software and code

So far, only for specific calls

Open software and code to be made publicly available under appropriate licenses

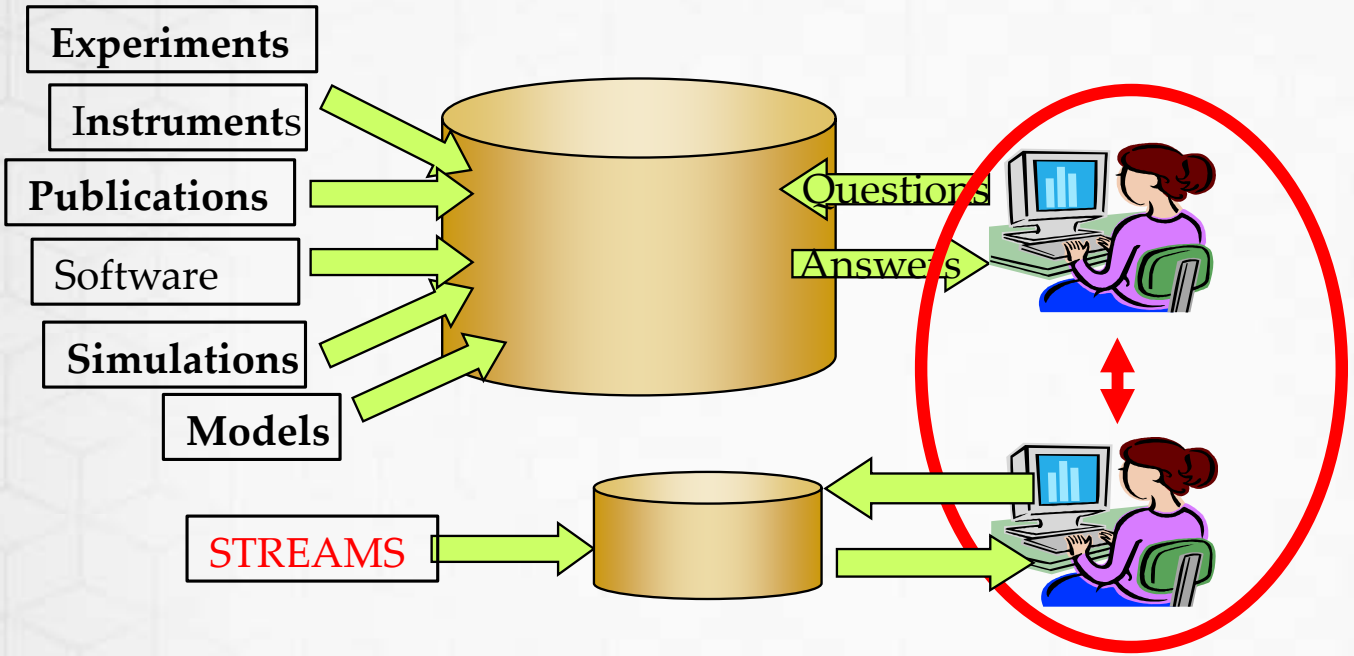
FAPESP is a member of the newly created funders forum of the ReSA network (Research Software Alliance)

FAPESP and open research infrastructures

- One of the main actors in creating Internet in Brazil (1988 ANSP to today - REDNESP)

- Multi-user equipment – any equipment over a certain amount must be installed in a shared-user mode to allow scientists from other groups (nearby labs, internet-collected labs) access = e.g., spectrographers

Open science – education and training for sharing



In Open Science, people
Are the key

Needs cultural change

Sharing research processes AS ENABLER OF COLLABORATION
WITHOUT BARRIERS

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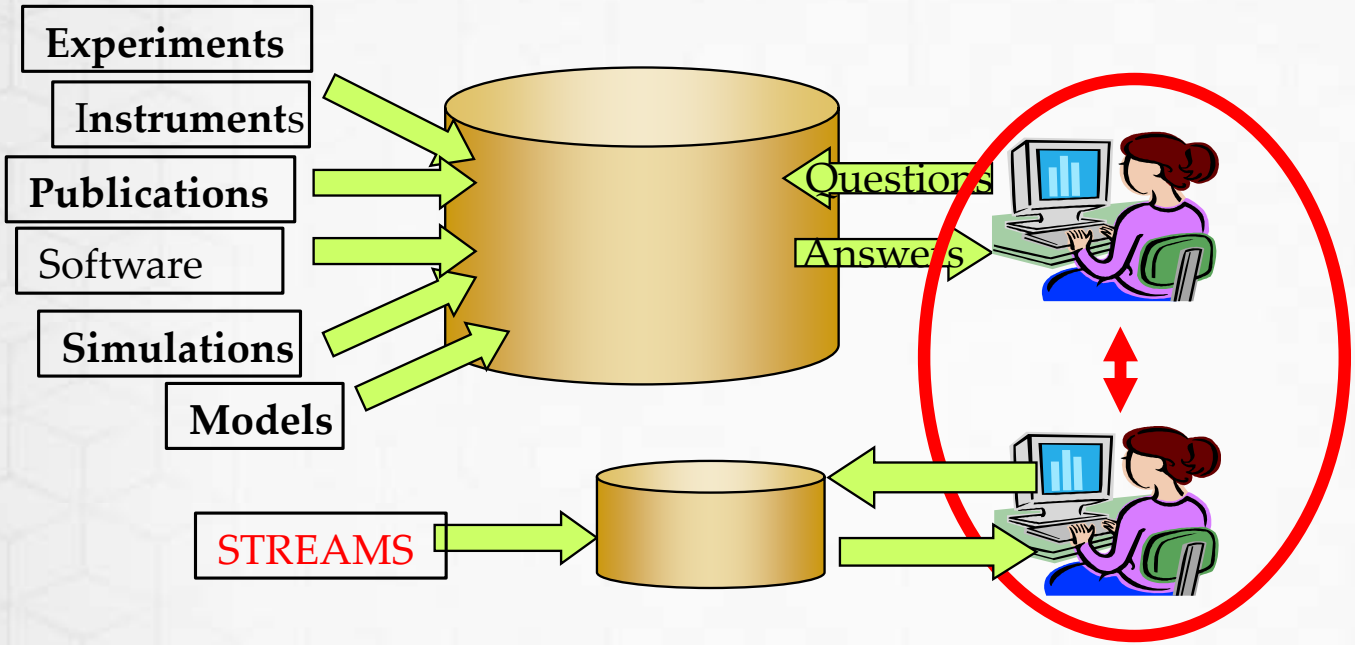
Open science – challenges



OPEN SCIENCE REQUIRES CULTURAL CHANGES, e-INFRASTRUCTURES AND POLICIES

Combining as open as possible with as closed as necessary

Open practices as resource, asset, and “language”

HOW CAN WE, THROUGH Open Science EXPLOIT NEW WAYS OF CREATING KNOWLEDGE AND INNOVATION THROUGH COLLABORATION AND SHARING?

HOW TO PROPOSE AND IMPLEMENT POLICIES TOWARDS GOVERNANCE, CONSIDERING DIVERSE AND COMPLEMENTARY EXPERIENCES AND KNOWLEDGE?

HOW CAN WE FURTHER COLLABORATE WITH THE EUROPEAN COMMISSION, OECD AND OTHER ORGANIZATIONS TO BETTER SUPPORT COLLABORATIVE OPEN RESEARCH

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