



openRDM.swiss – A National RDM Service for the Swiss Scientific Community

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EGI Conference 2019, Amsterdam, 7th May 2019

Mandated by **swissuniversities**



Overview

1. Why do we need RDM and why is it so challenging?
2. What is needed – tools, support and education
3. openRDM.swiss – a national RDM service
4. Challenges and opportunities

What is research data management?

"Research data management concerns the **organisation of data**, from its entry to the research cycle through to the dissemination and archiving of valuable results. It aims to ensure **reliable verification of results**, and permits **new and innovative research built on existing information**."

Whyte, A., Tedds, J. (2011). Making the Case for Research Data Management. Edinburgh: Digital Curation Centre



By i ♥ happy!! from NY, NY (Flickr) [CC BY 2.0]



By Ricardo from Manchester, UK - Manchester Central Library, March 2010 [CC BY 2.0]

Why is research data management important?

A researcher's worst nightmare...



“At the request of the authors, the paper noted above is being retracted. Western blots in Figs. 1D, 3D, 4A, 4B, 4D, and 6 do not represent the experiments that were reported in the manuscript. **Original captures for several blots in these figures could not be located**, and others are inconsistent with what is presented in the figures.”

About Msallem J, et al. *Am J Physiol Renal Physiol*, 2015



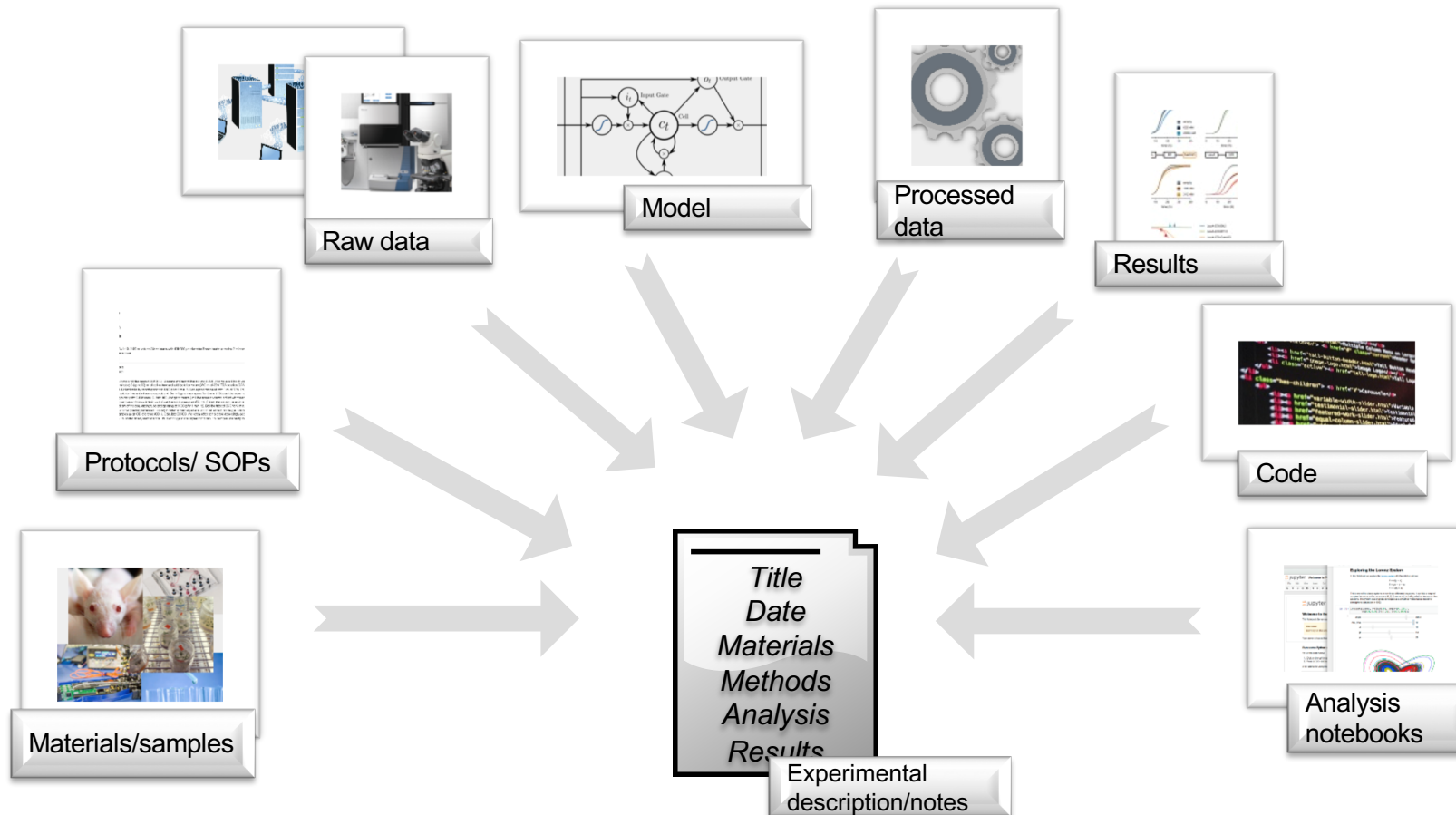
Data availability declines with time (Vines et al., Current Biology, 2014)

Table 1. Breakdown of Data Availability by Year of Publication

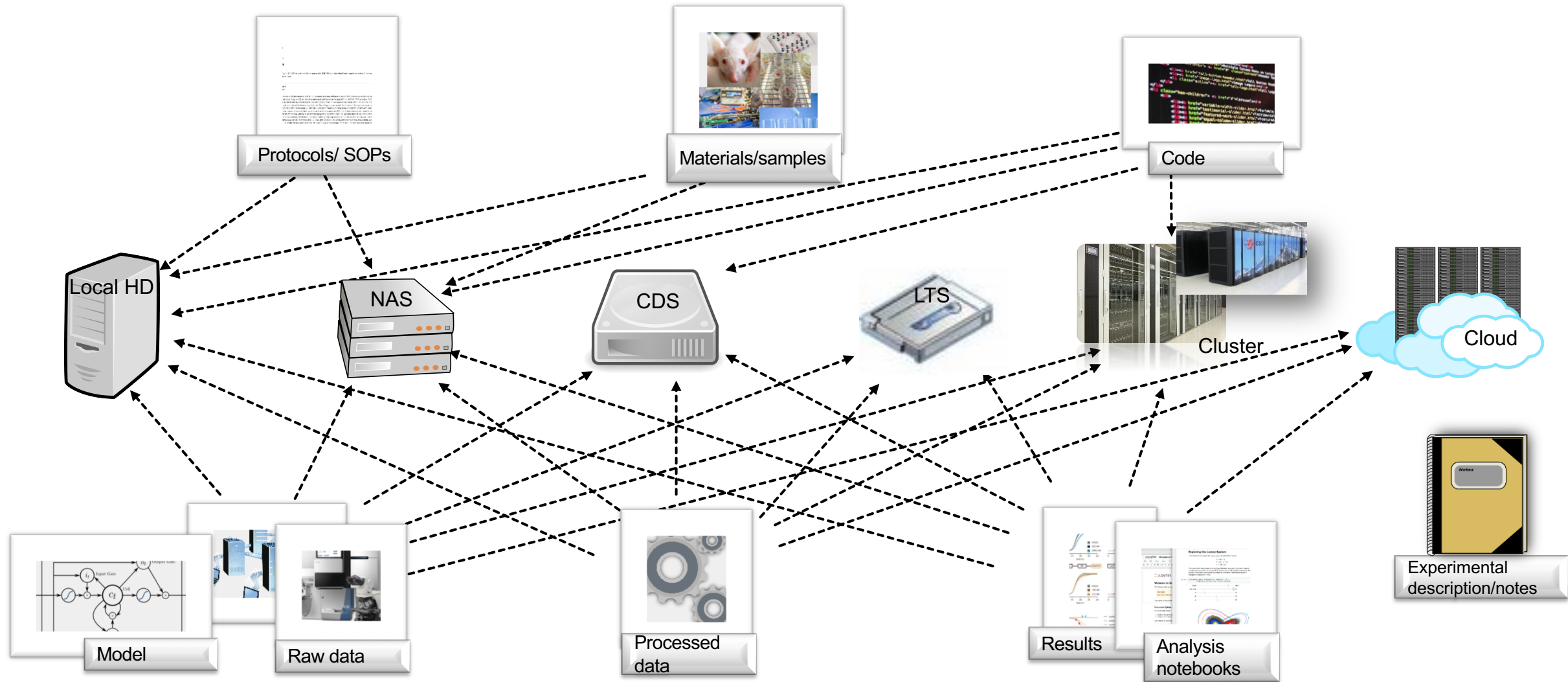
Year	No Working E-Mail	No Response to E-Mail	Response Did Not Give Status of Data	Data Lost	Data Exist, Unwilling to Share	Data Received	Data Extant (Unwilling to Share + Received)	Number of Papers
1991	9 (35%)	9 (35%)	2 (8%)	4 (15%)	1 (4%)	1 (4%)	2 (8%)	26
1993	14 (39%)	11 (31%)	3 (8%)	7 (19%)	0 (0%)	1 (3%)	1 (3%)	36
1995	11 (31%)	9 (26%)	0 (0%)	7 (20%)	2 (6%)	6 (17%)	8 (23%)	35
1997	11 (37%)	9 (30%)	1 (3%)	2 (7%)	3 (10%)	4 (13%)	7 (23%)	30
1999	19 (48%)	13 (32%)	1 (2%)	1 (2%)	0 (0%)	6 (15%)	6 (15%)	40
2001	13 (30%)	15 (35%)	3 (7%)	4 (9%)	0 (0%)	8 (19%)	8 (19%)	43
2003	9 (20%)	20 (43%)	4 (9%)	2 (4%)	0 (0%)	11 (24%)	11 (24%)	46
2005	11 (24%)	14 (31%)	6 (13%)	1 (2%)	0 (0%)	13 (29%)	13 (29%)	45
2007	12 (18%)	31 (47%)	2 (3%)	4 (6%)	1 (2%)	16 (24%)	17 (26%)	66
2009	9 (13%)	34 (49%)	3 (4%)	5 (7%)	6 (9%)	12 (17%)	18 (26%)	69
2011	13 (16%)	29 (36%)	8 (10%)	0 (0%)	7 (9%)	23 (29%)	30 (38%)	80
Totals	131 (25%)	194 (38%)	33 (6%)	37 (7%)	20 (4%)	101 (19%)	121 (23%)	516

Why is research data management difficult?

Complex process that requires tracking and linking different types of information



A familiar scenario? (typical example @ETHZ)



What is needed



Tools

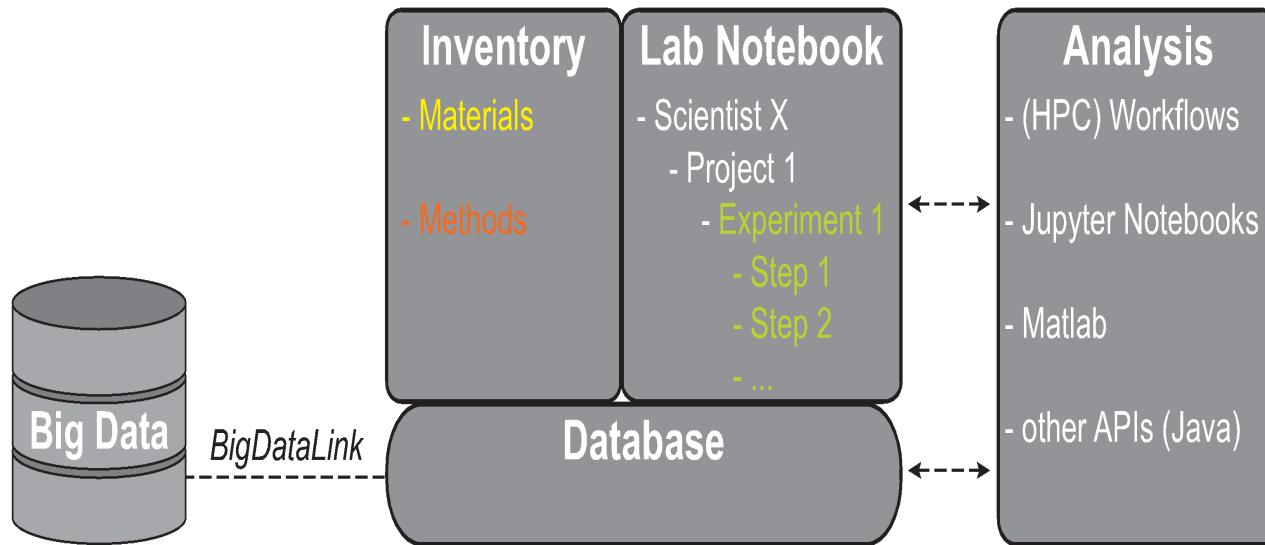


Support in using tools



Education

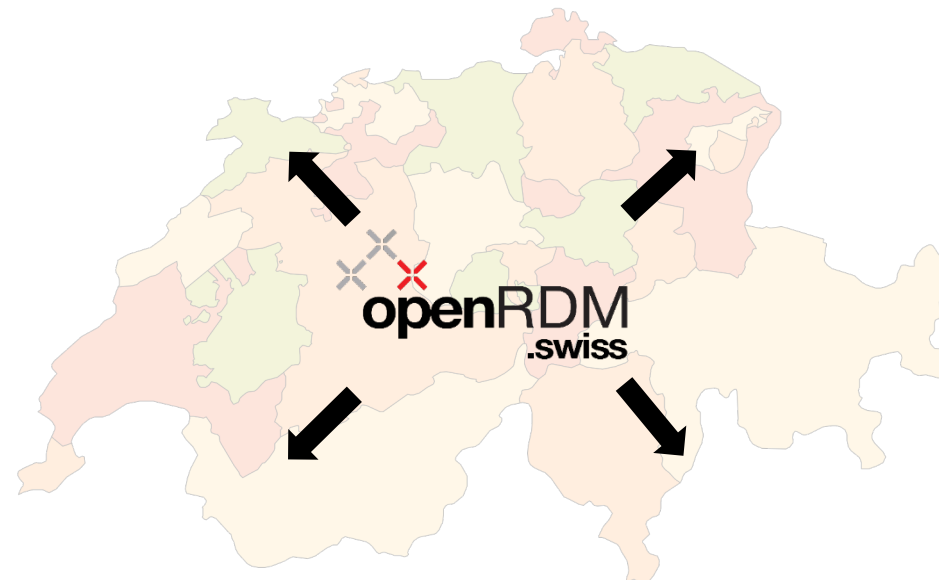
Tools: openBIS – an open RDM solution developed by ETH SIS



- Open-source software, free for academics
- Designed to keep track of all components of research project in one location
- Materials and methods stored in Inventory
- Experiments recorded in Lab Notebook
- Data uploaded manually, ingested directly from measuring devices, or linked from existing storage locations
- Current use cases across various quantitative research domains

Support and Education: helping researchers adapt and adopt

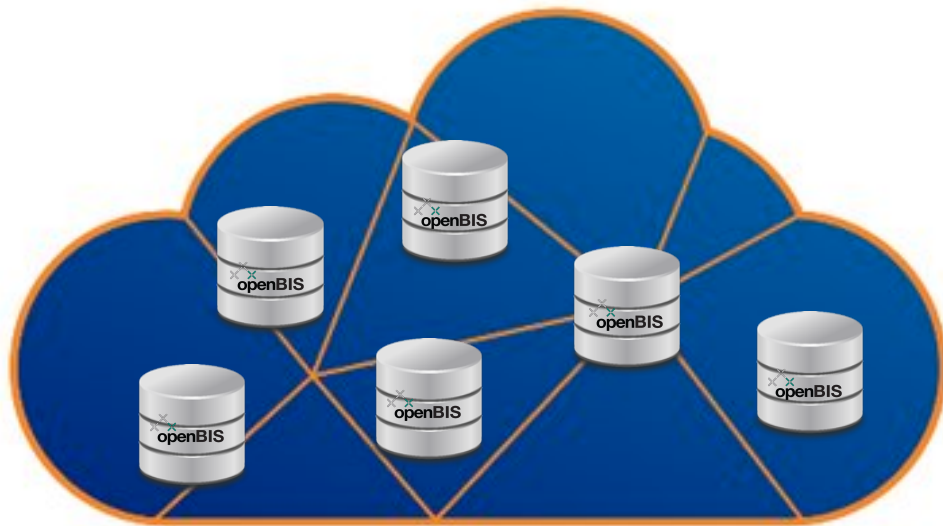
- A data management platform alone is often not enough, researchers need support setting it up and adapting their working practices to make use of it
- ETH-SIS has extensive experience and expertise in RDM consultancy and training
- This includes hands-on RDM consulting with ETH research groups, training workshops on RDM in collaboration with the ETH Library
- Until August 2018, service restricted to ETH researchers – via openRDM.swiss, offer RDM as a service to the entire Swiss scientific community



The openRDM.swiss project



University of
Zurich^{UZH}



SWITCHengines

National RDM service based on openBIS

- Data in openBIS is 'FAIR enough' (subjectivity in principles)

Cloud-hosted openBIS instance

- Ideal solution for those without dedicated IT resources
- Virtual servers per research group, institute or institution
- Optionally with JupyterHub server for analytics
- Plan to make available on SWITCHhub marketplace

Self-hosted openBIS instance

- Using local IT infrastructure

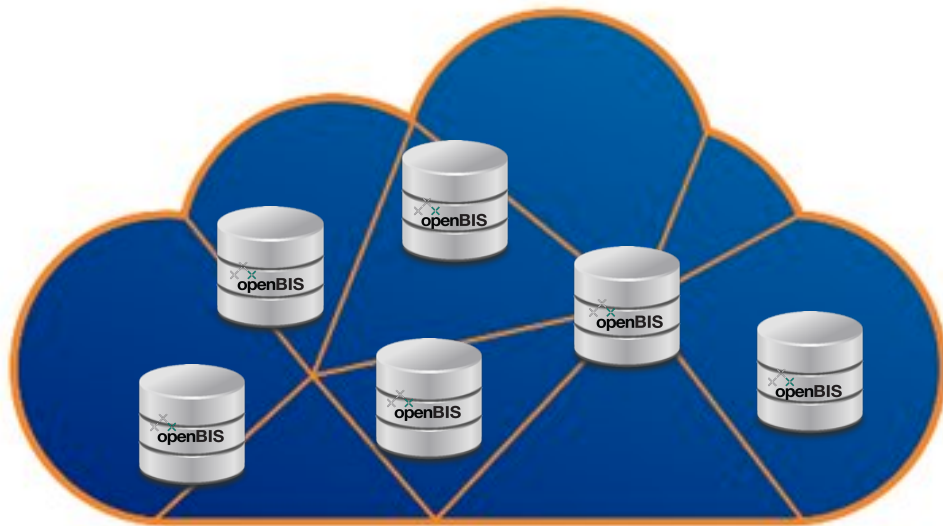
Training & 'best effort' user support

- On-site training for users

The openRDM.swiss project



University of
Zurich^{UZH}



SWITCHengines









Service charges (project phase)

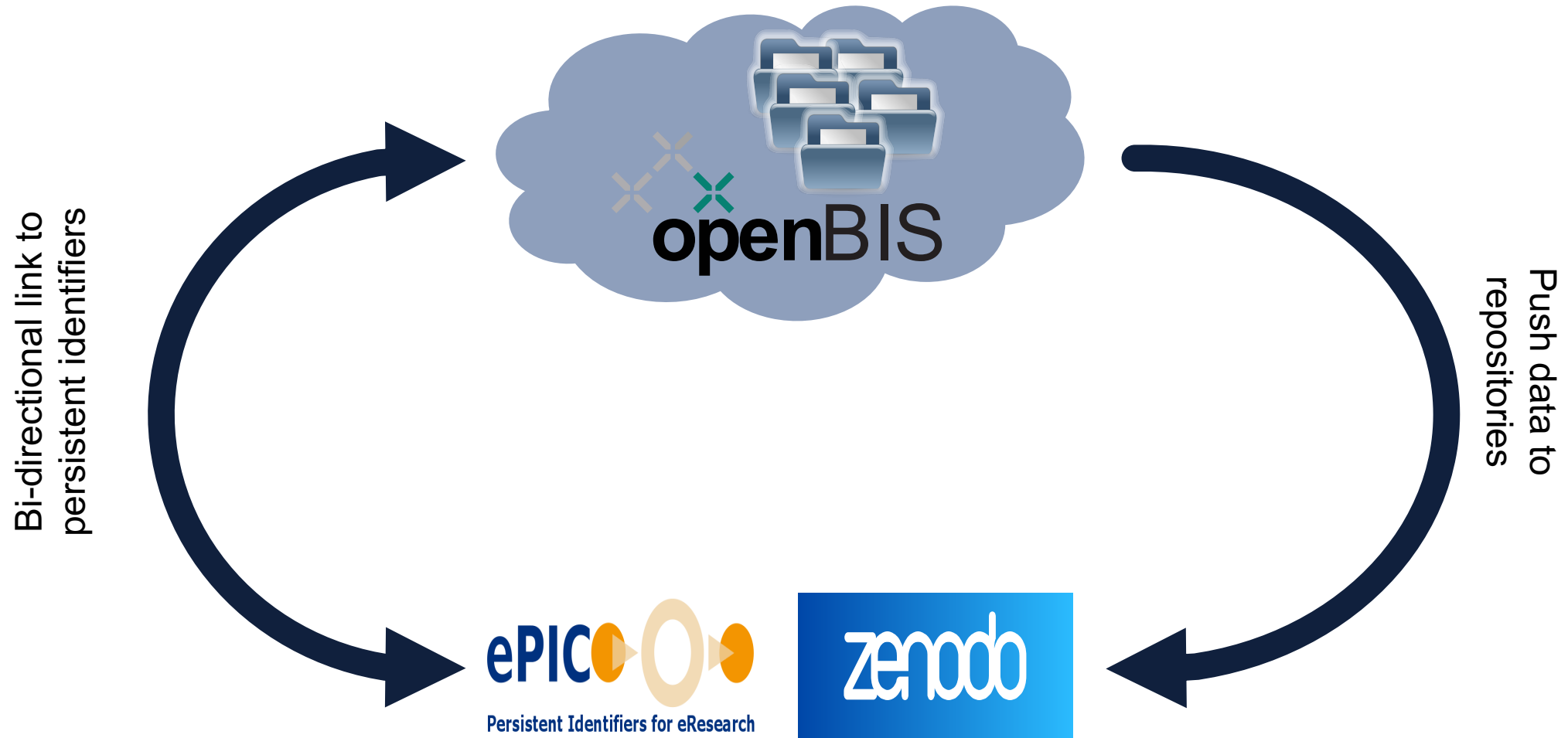
- Goal: sustainable long-term operation of service
- **Either: SWITCH infrastructure**
 - Compute, storage, backup
 - ≈ CHF 1'500 per year (2CPUs, 8GB RAM, 100GB disk)
- **Or: Local infrastructure charges**
- **Service setup, maintenance and support ('best effort')**
 - One-time setup fee: CHF 1'000
 - Yearly maintenance & support fee: CHF 1'500
- Optional: **support contract with SIS**
- Business model development for sustainable long-term operation of the service once subsidised project phase ends



Next steps & Challenges

-  • **SWITCHhub onboarding**
 - Define service level (gold, silver, bronze)
 - Define billing model / authentication
-  • Define **business model** & service description
 - Review of service charges
-  • Ramp up **outreach activities**
 - Workshops & trainings at different institutions
 - Follow-up existing contacts
 - Co-marketing with SWITCH
-  • Develop **connectors to FAIR repositories**
 - ETH Research Collection
 - Zenodo / DLCM 2
-  • Support existing use cases
-  • Explore **integration at European level (EOSC)**

Future development – a complete RDM solution



Upcoming event

openBIS User Group Meeting

18th & 19th June 2019

ETH Zürich, Zentrum

bit.ly/2Jf6niM

Contacts & useful info



- **openBIS docs & videos** <https://labnotebook.ch>
- **Project website:** <https://openrdm.swiss>
- **openRDM helpdesk:** openRDM@id.ethz.ch
- **SIS website:** <https://sis.id.ethz.ch>
- **SIS Twitter:** https://twitter.com/ETH_SIS