



CEPLAS

Cluster of Excellence on Plant Sciences

Start Your ARC Workshop Series

Session 01 - Introduction to the ARC (demo)

May 9th, 2023

Dominik Brilhaus - CEPLAS Data Science



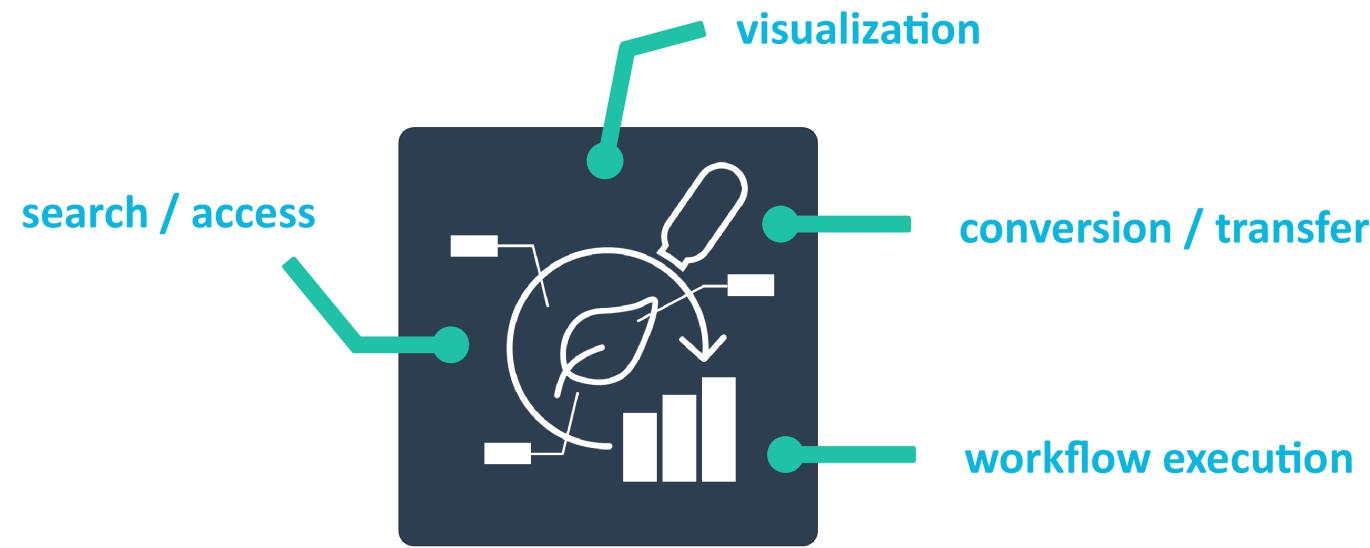
CEPLAS collaborates with DataPLANT



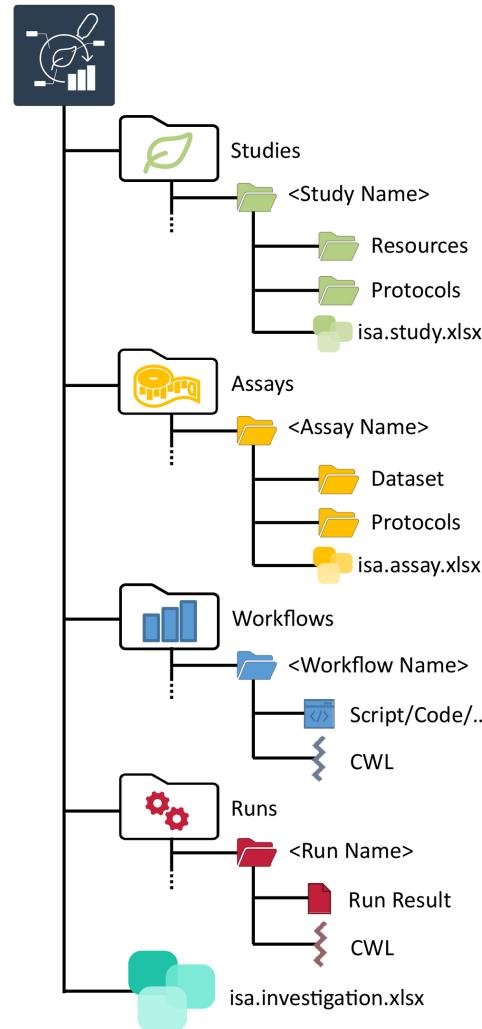
CEPLAS collaborates with DataPLANT



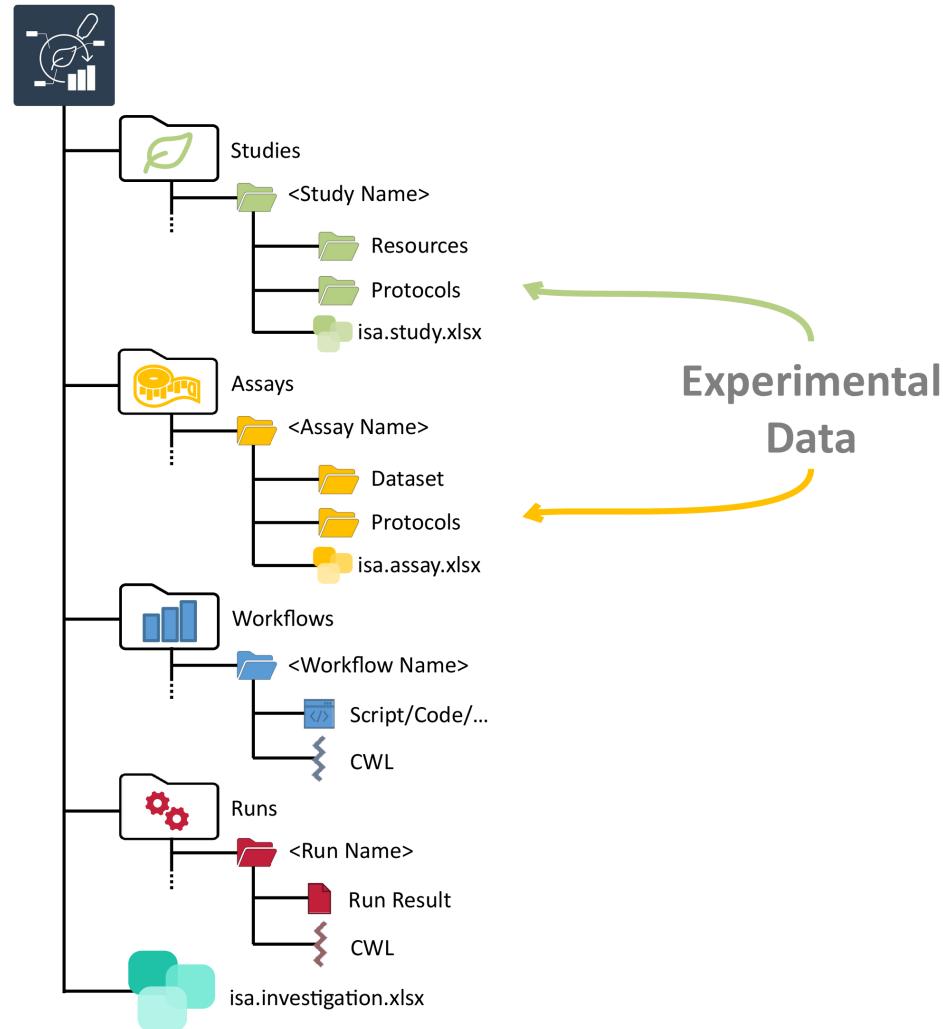
Annotated Research Context (ARC)



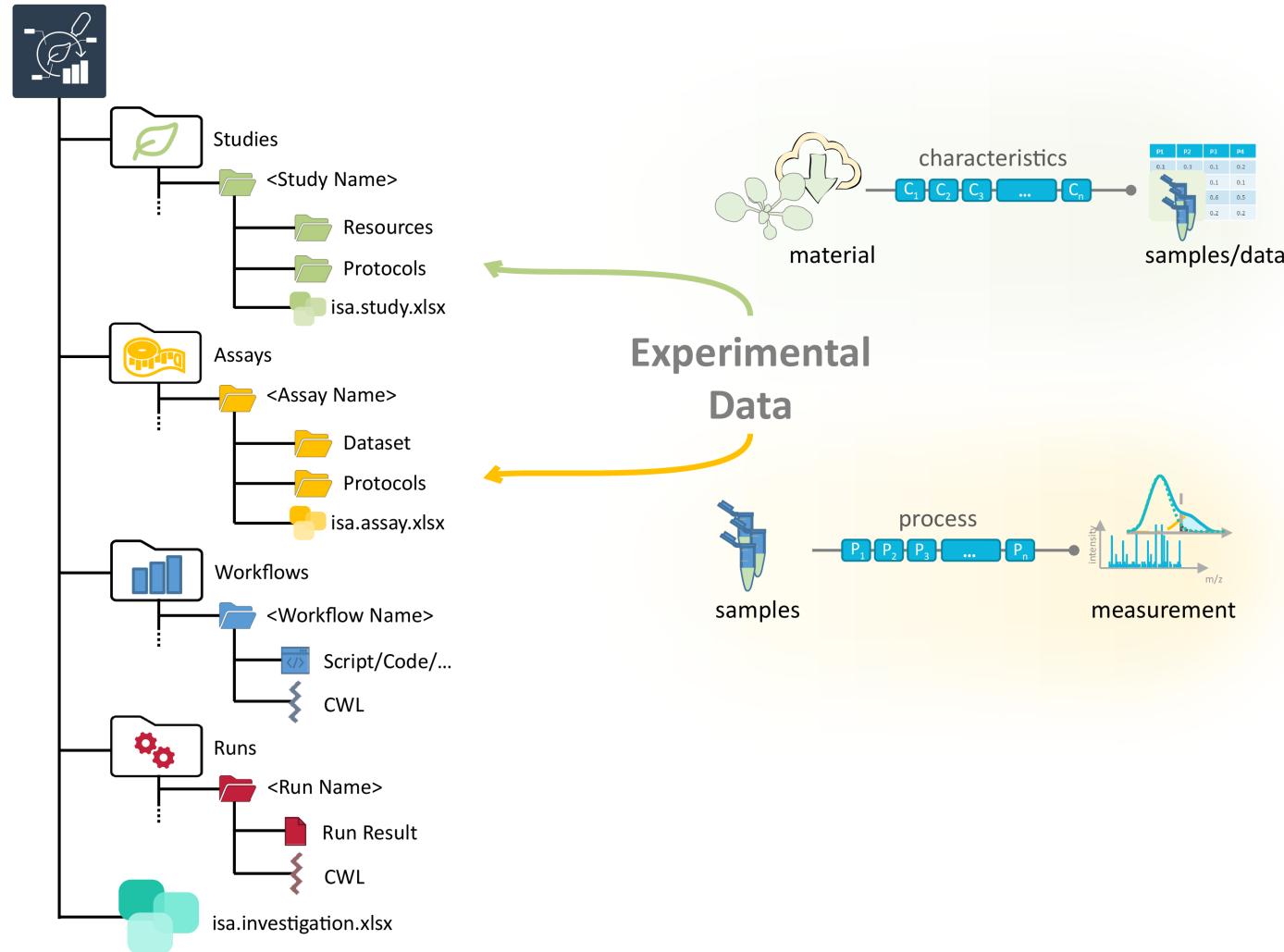
What does an ARC look like?



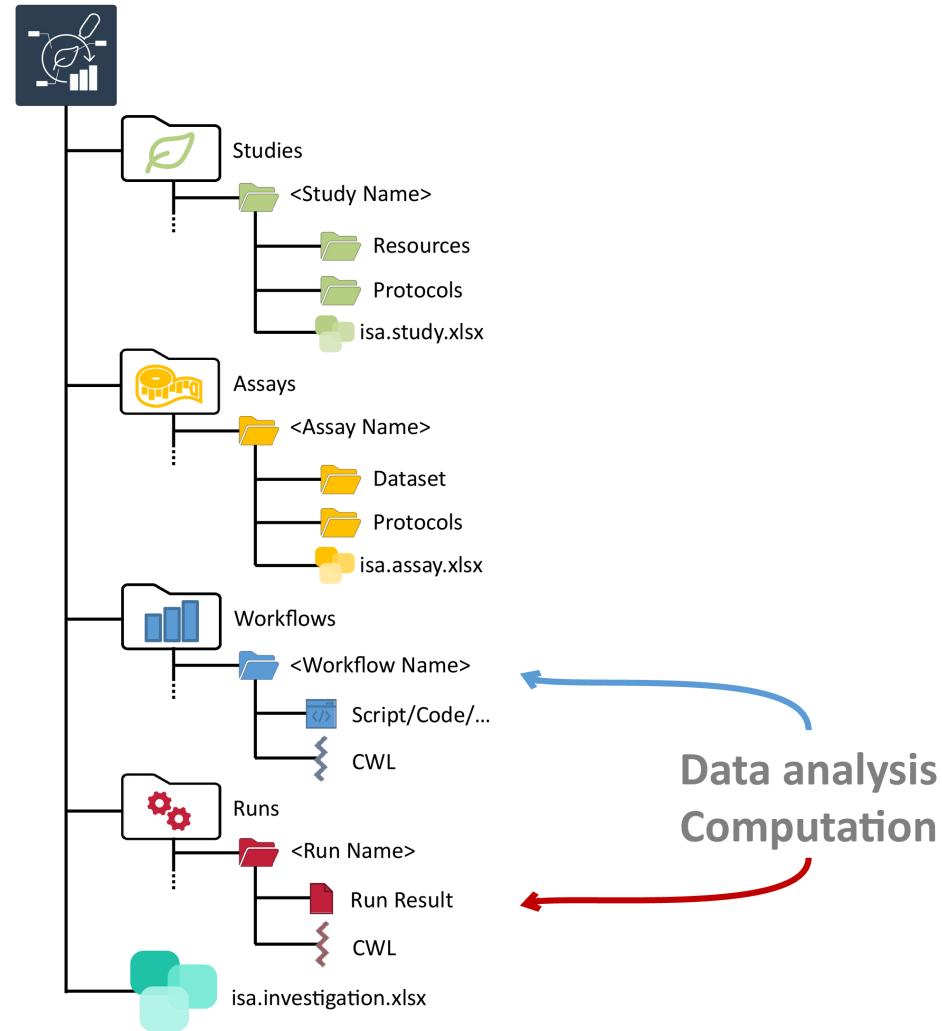
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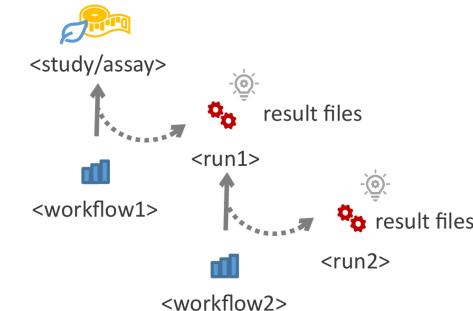
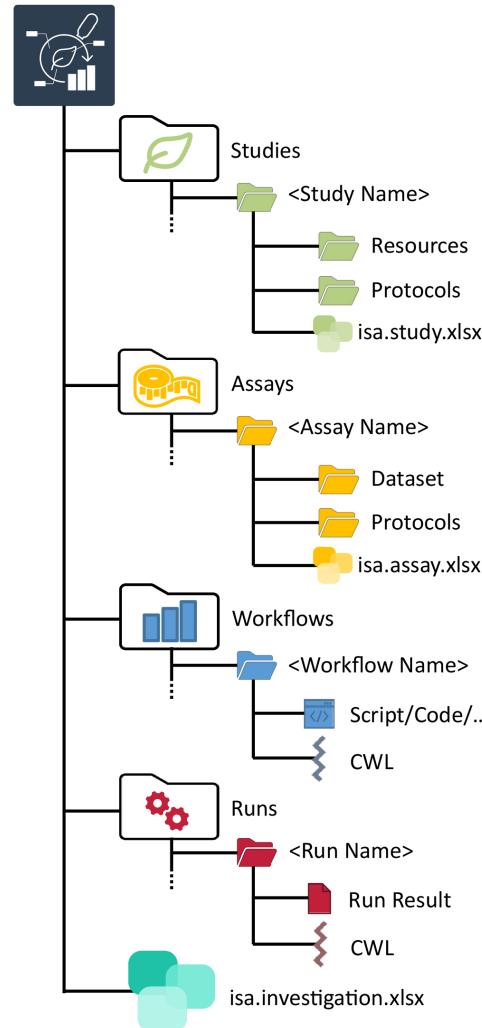
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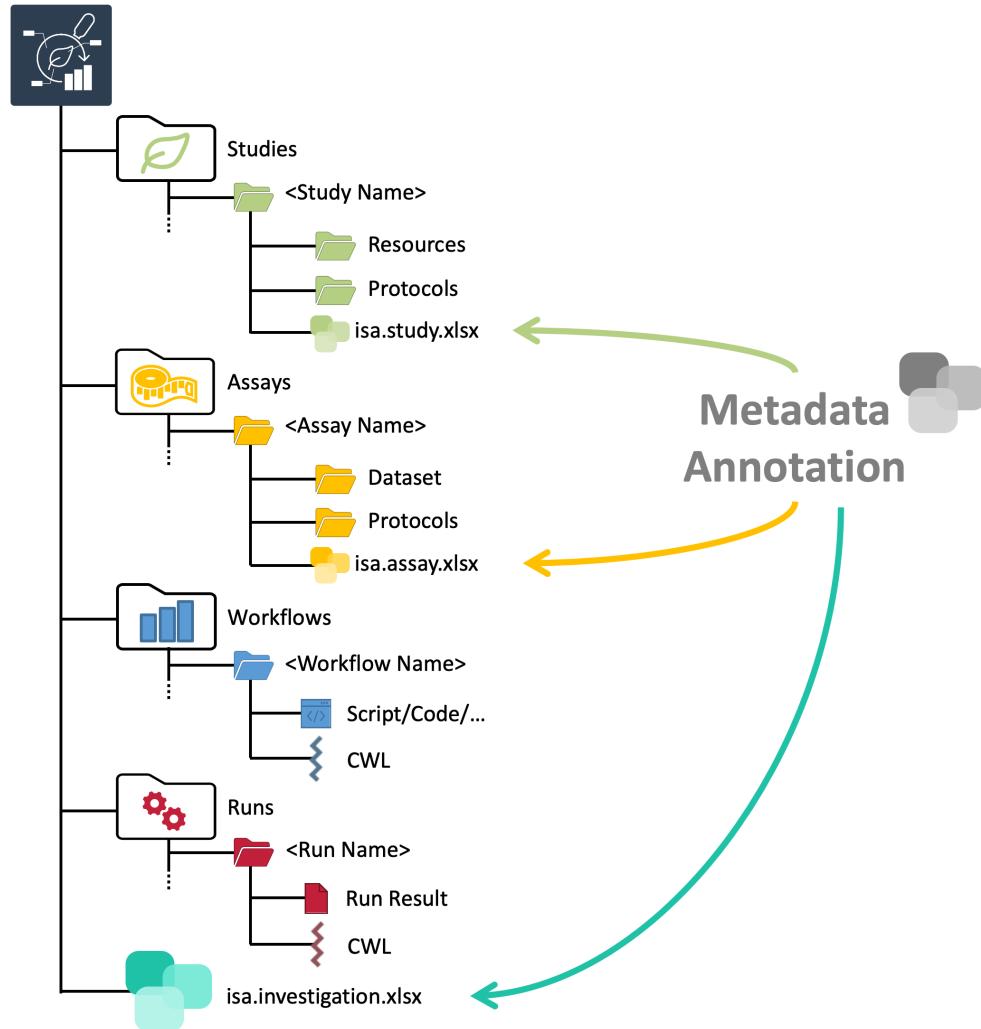
What does an ARC look like?



What does an ARC look like?



What does an ARC look like?





FINDABLE

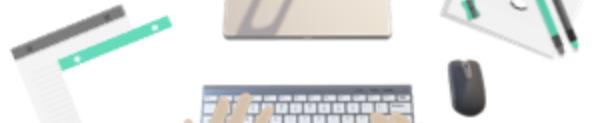
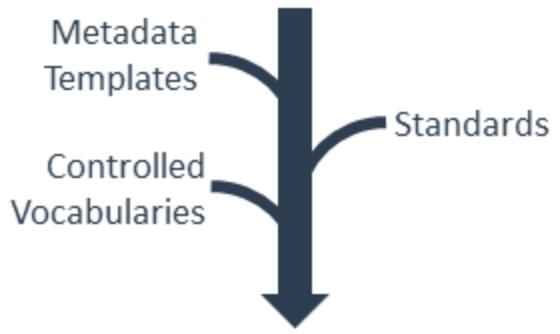
ACCESSIBLE

INTEROPERABLE

REUSABLE

Metadata
Templates

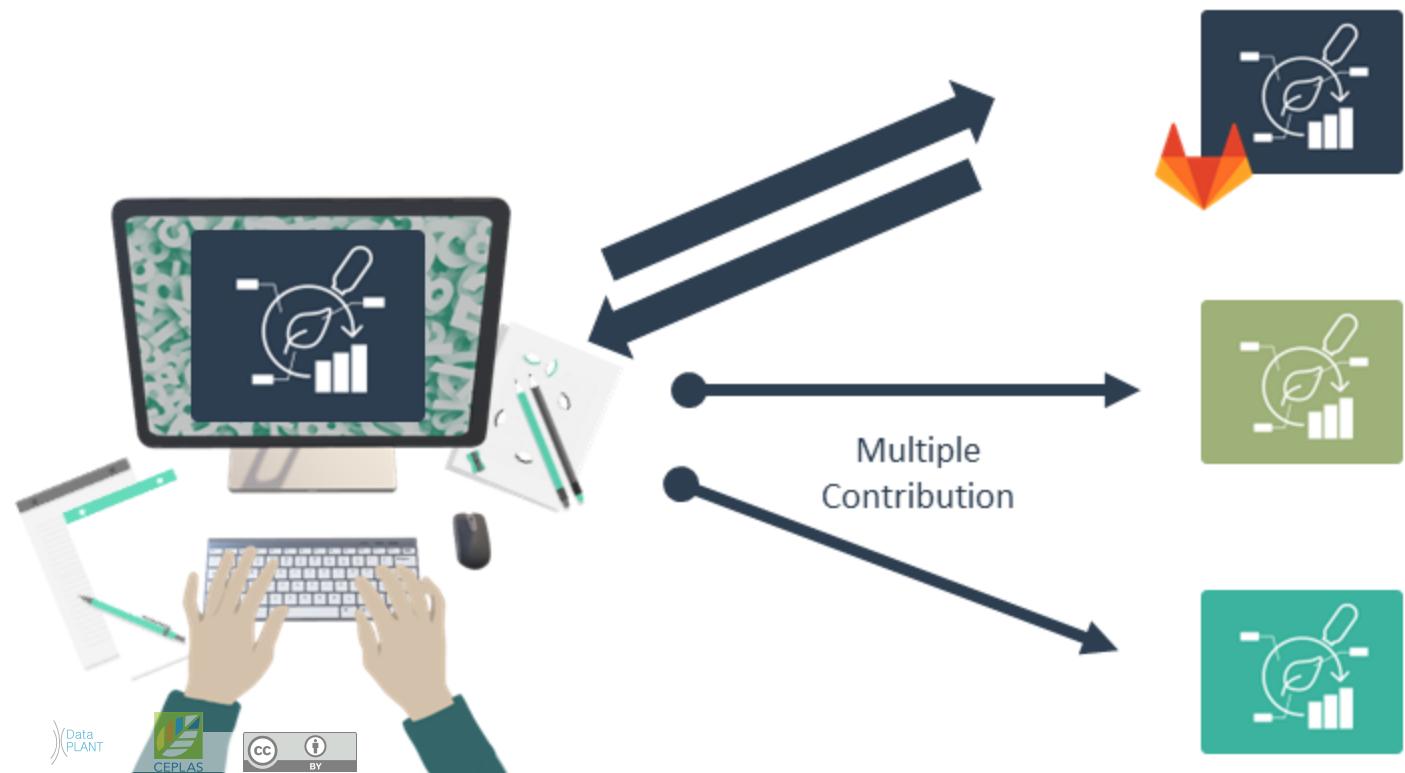
Controlled
Vocabularies

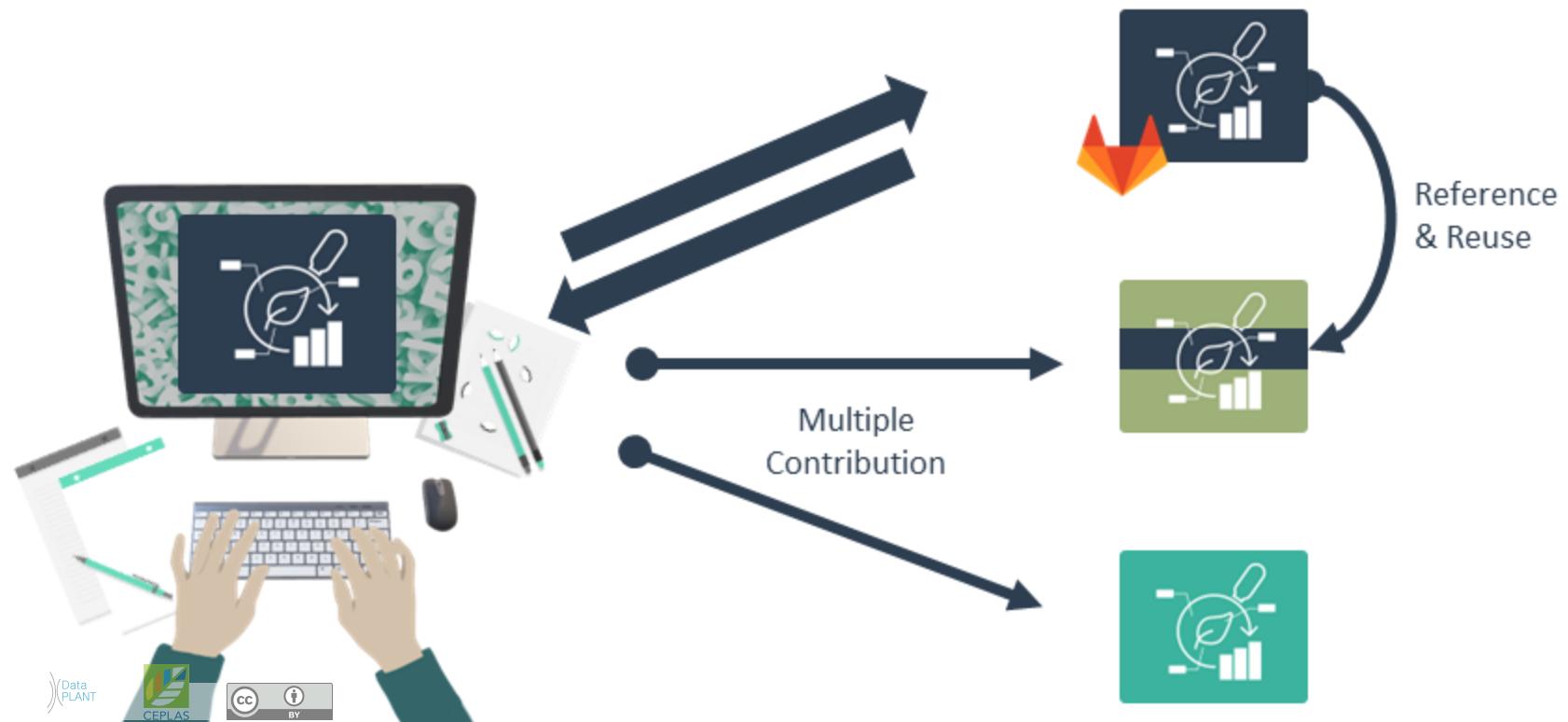


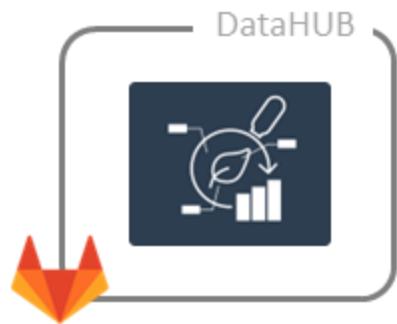
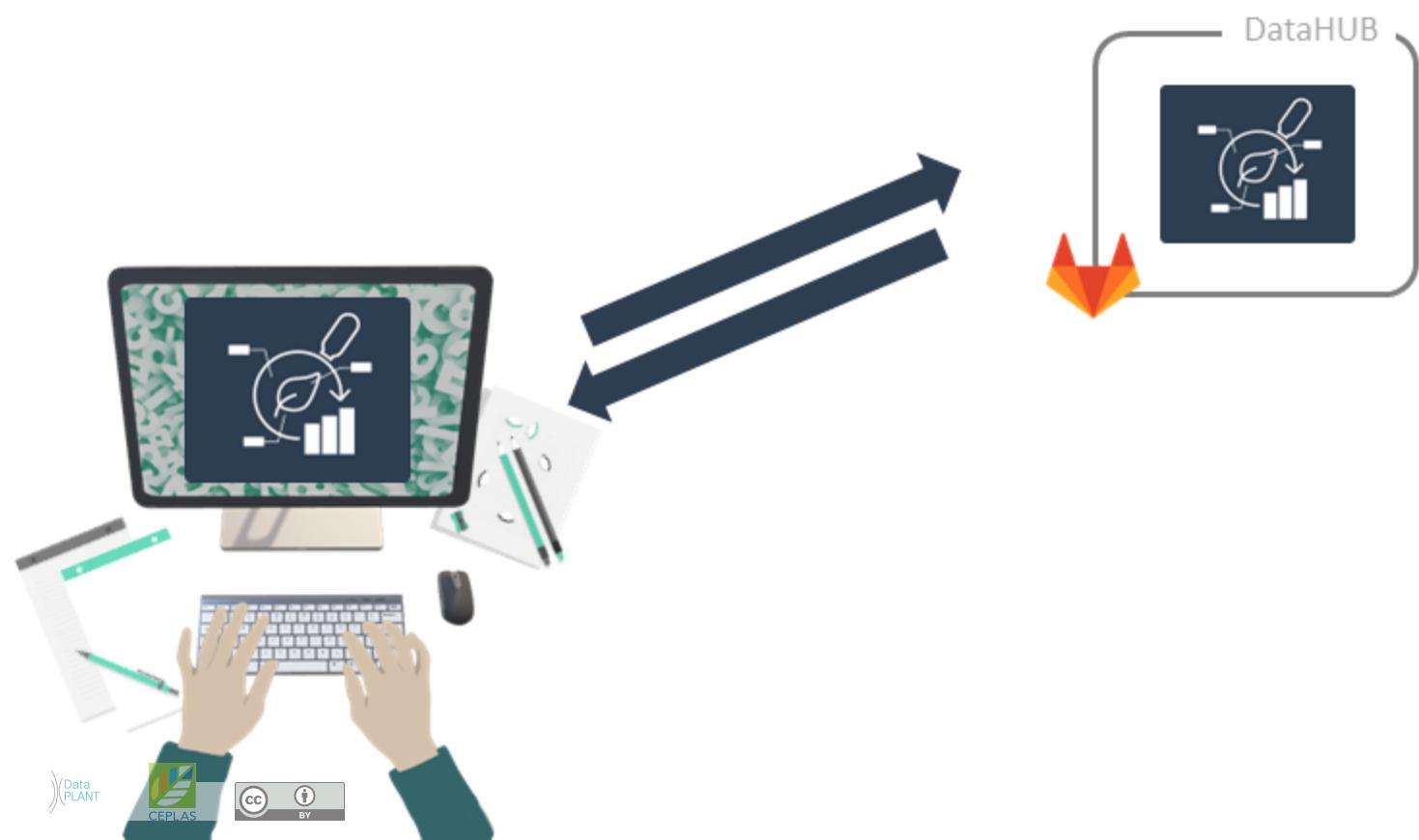






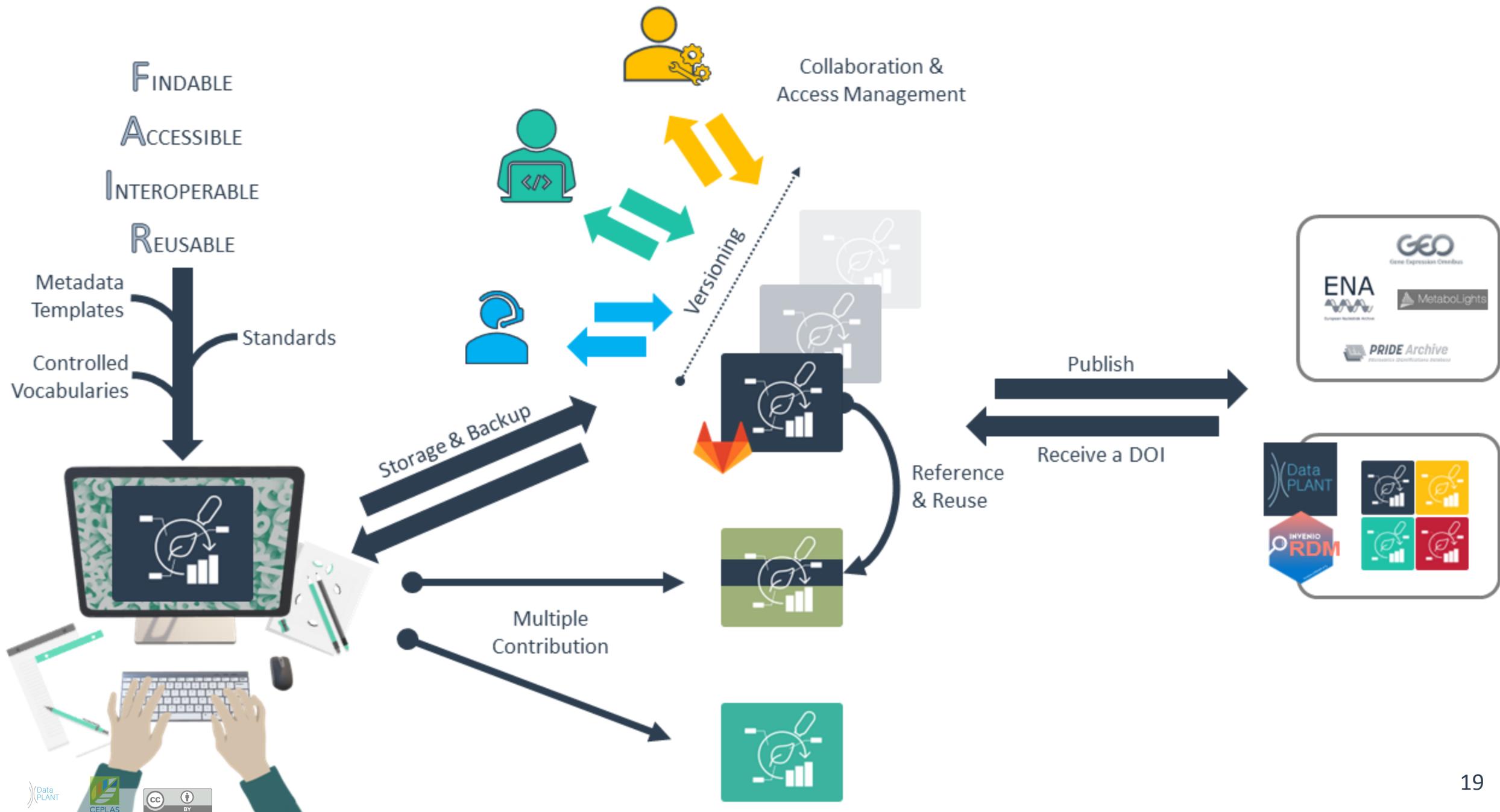






Publish
Receive a DOI





First steps towards your ARC

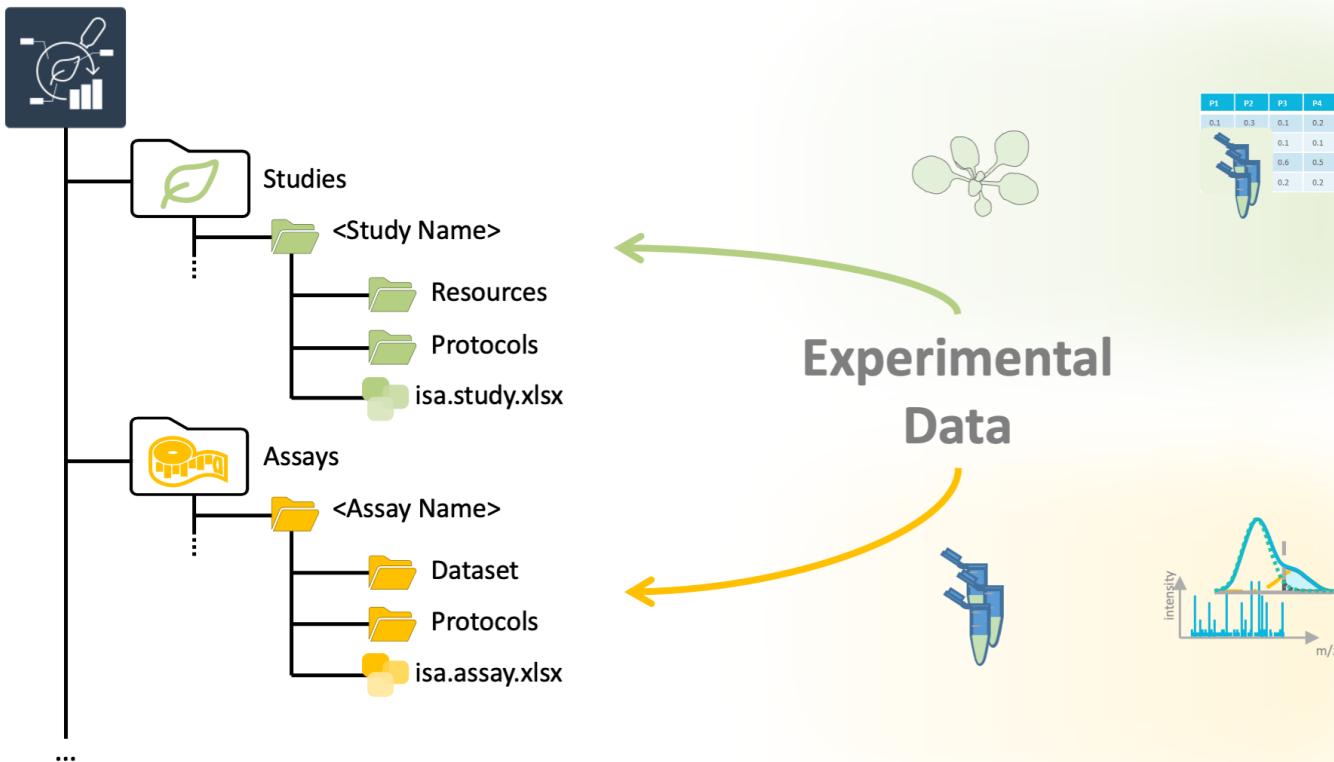
You just received your data

metabolomics_data
150112_56.D
150112_62.D
150112_66.D
150115_12.D
150115_14.D
150115_16.D
gcms_samplelist.tsv
method_gcms.txt
sample_submission_gcms.csv
methods
Illumina_libraries.txt
metabolite_extraction.txt
plant_material.txt
RNA_extraction.txt
rnaseq_data
DB_097_CAGATC_L001_R1_001.fastq.gz
DB_099_CTTGTA_L001_R1_001.fastq.gz
DB_103_AGTCAA_L001_R1_001.fastq.gz
DB_161_GTCCGC_L001_R1_001.fastq.gz
DB_163_GTGAAA_L001_R1_001.fastq.gz
DB_165_GTGAAA_L002_R1_001.fastq.gz
NGS_SampleSheet.xlsx

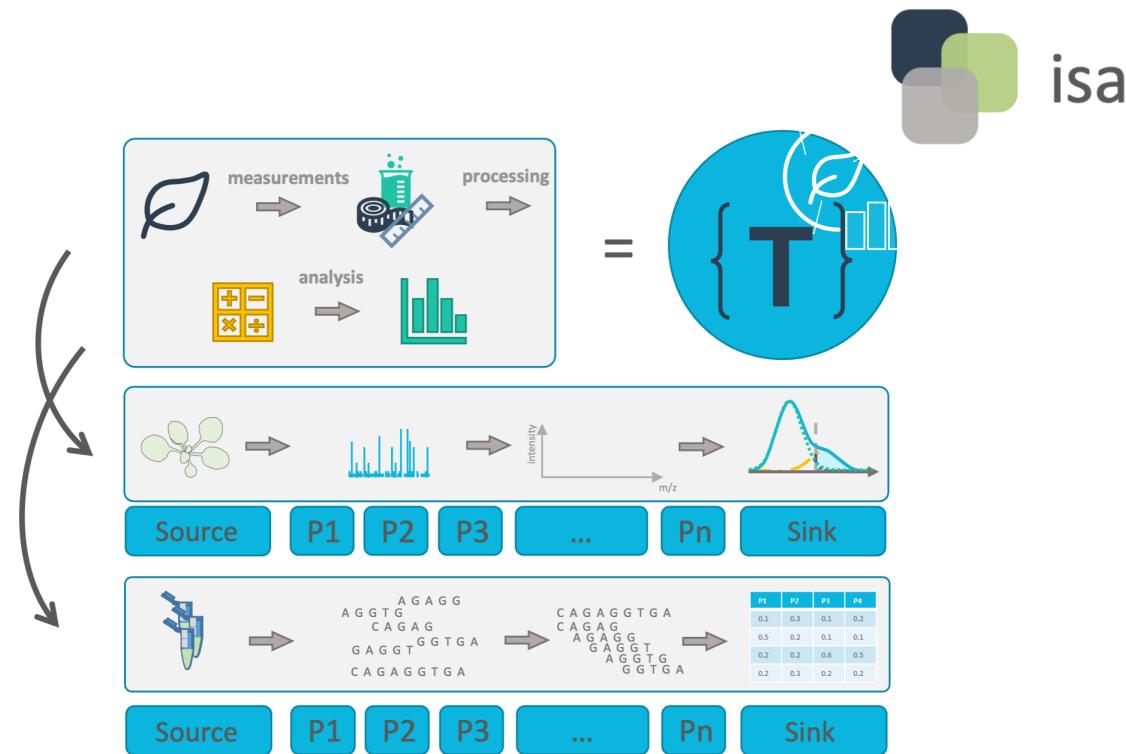
Goal

- Structure,
- Annotate, and
- Share **your experimental data.**

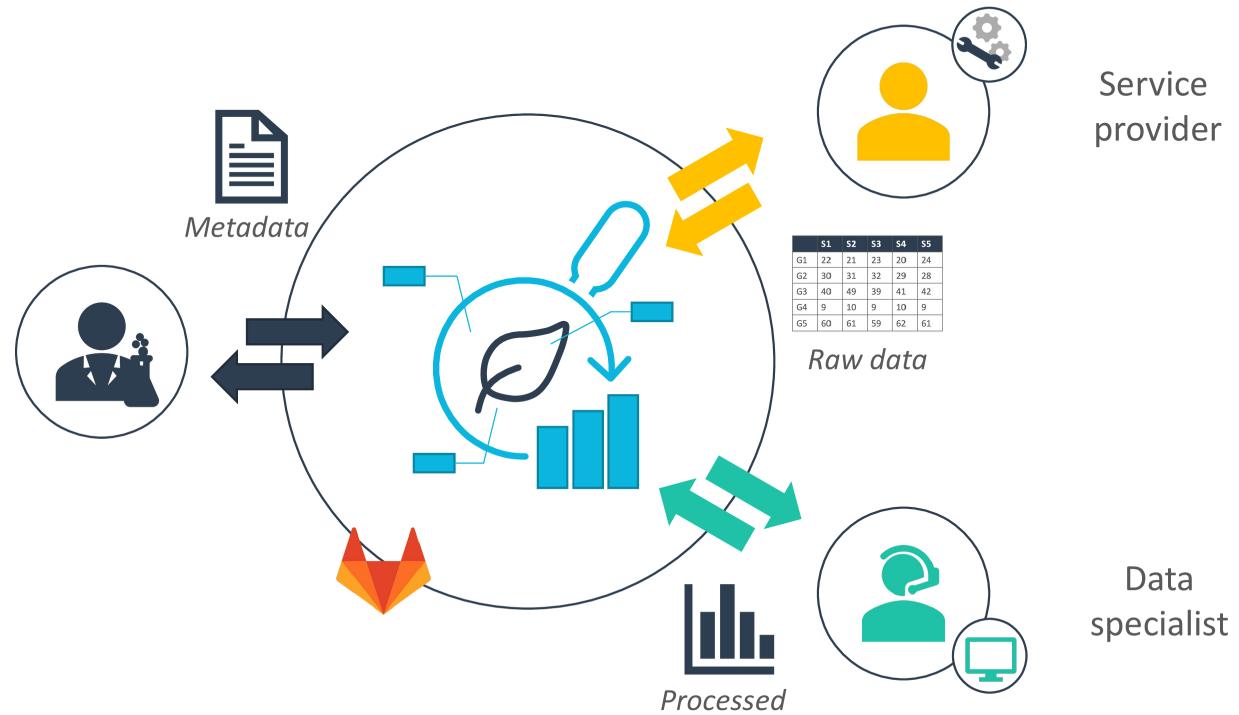
Structure your data



Annotate your data



Collaborate and share



Sync your ARC to the DataHUB

```
arc sync -f -r https://git.nfdi4plants.org/brilator/demo-arc
```

Invite collaborators to your ARC

<https://git.nfdi4plants.org/brilator/demo-arc>

Using the ARC Commander to setup an ARC

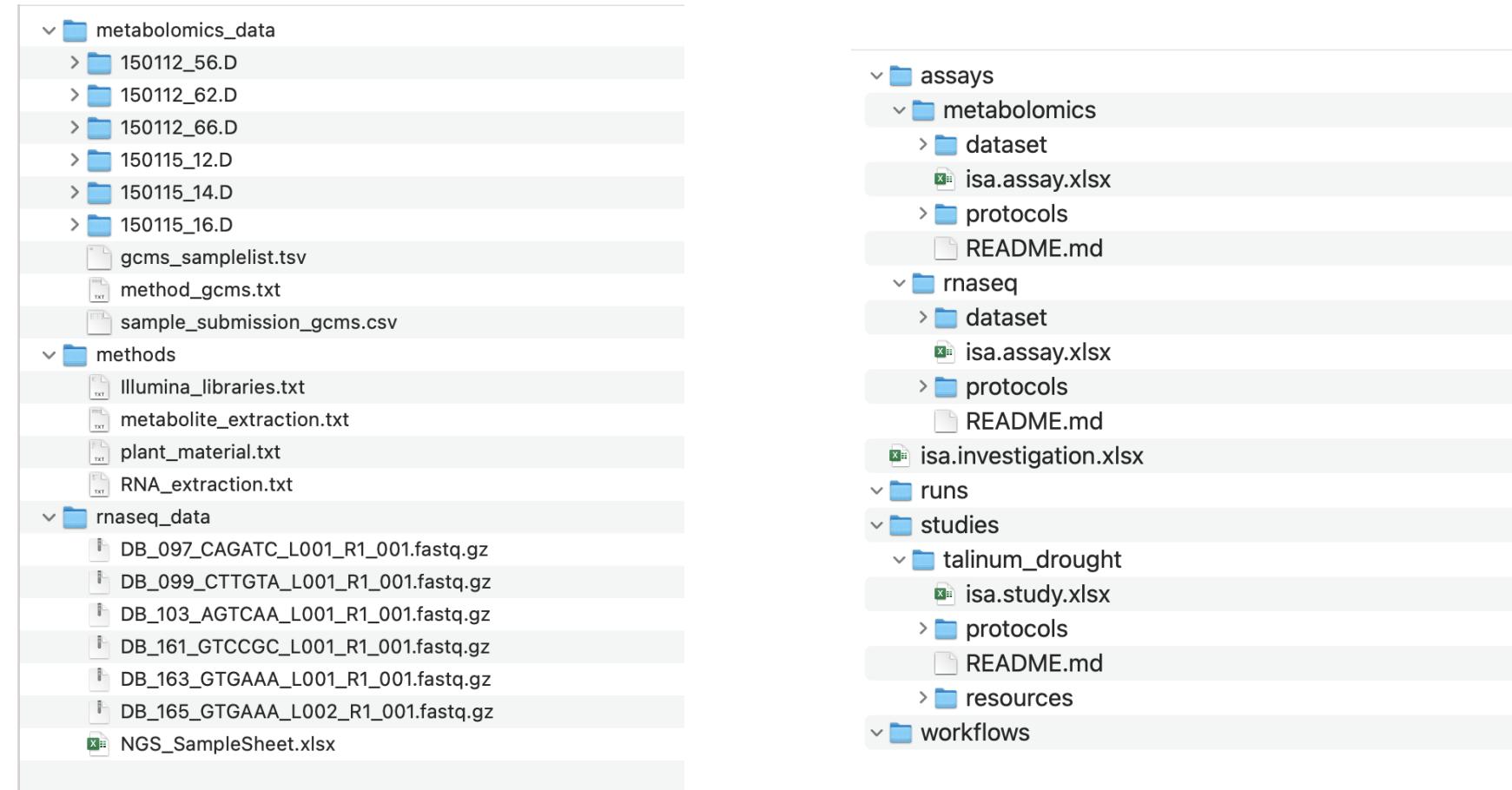
Initiate the ARC folder structure

```
arc init
```

Add metadata structure

```
arc i create -i TalinumPhotosynthesis  
arc s add -s talinum_drought  
arc a add -s talinum_drought -a rnaseq  
arc a add -s talinum_drought -a metabolomics
```

Your ARC is ready



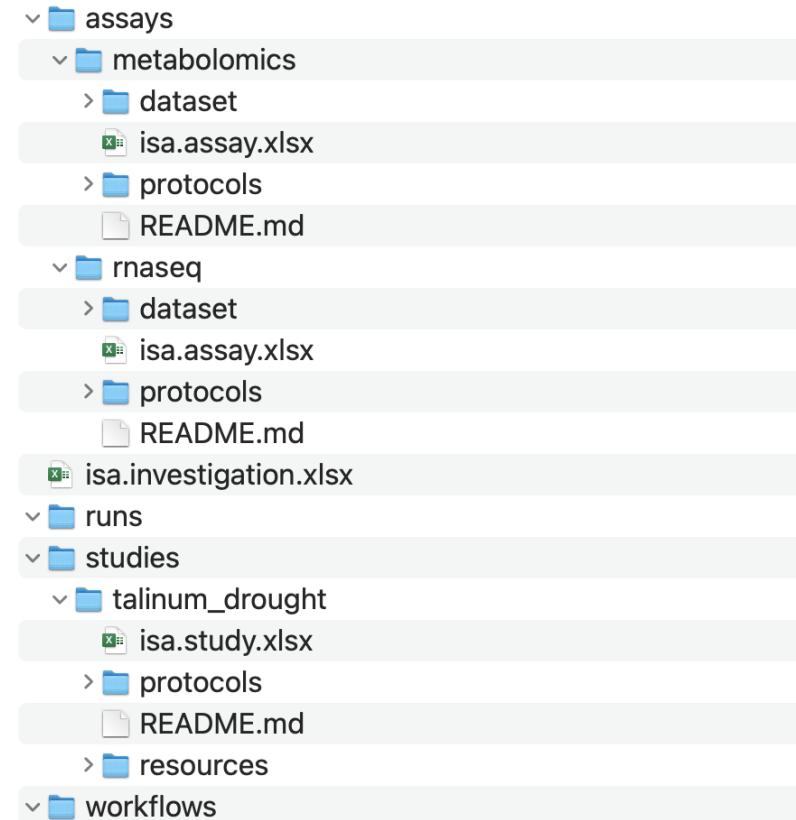
Your ARC is ready

 Initiated an ARC

 Structured and ...

 ... annotated experimental data

 Shared with collaborators



Resources



CEPLAS Data Science

Website: <https://www.ceplas.eu/en/research/data-science-and-data-management/>



DataPLANT (nfdi4plants)

Website: <https://nfdi4plants.org/>

Knowledge Base: <https://nfdi4plants.org/nfdi4plants.knowledgebase/>

DataHUB: <https://git.nfdi4plants.org>

GitHub: <https://github.com/nfdi4plants>

Acknowledgements

CEPLAS

- Björn Usadel, Andrea Schrader, Hajira Jabeen (until 2021)

DataPLANT

- Timo Mühlhaus & Group
- Cristina Martins Rodrigues, Martin Kuhl



3rd DataPLANT Hackathon – Sept. 2022