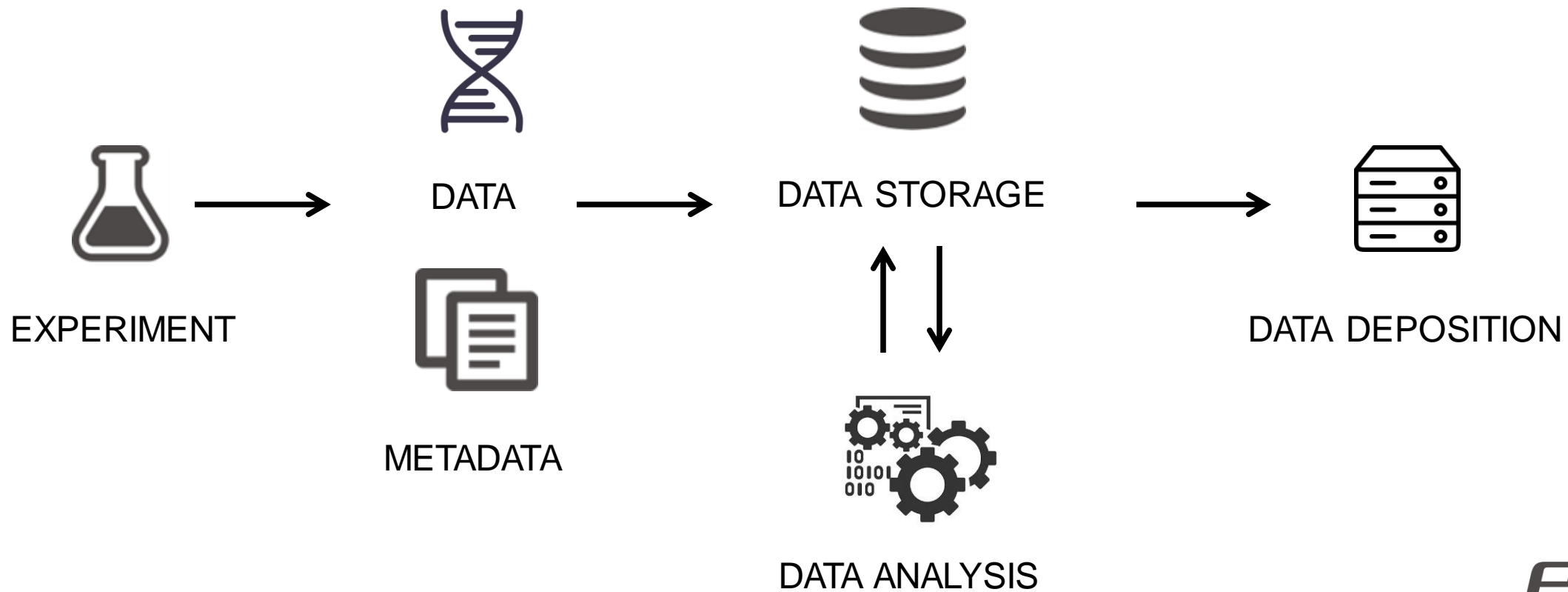# National storage infrastructures

NeLS/StoreBioInfo, NIRD, TSD
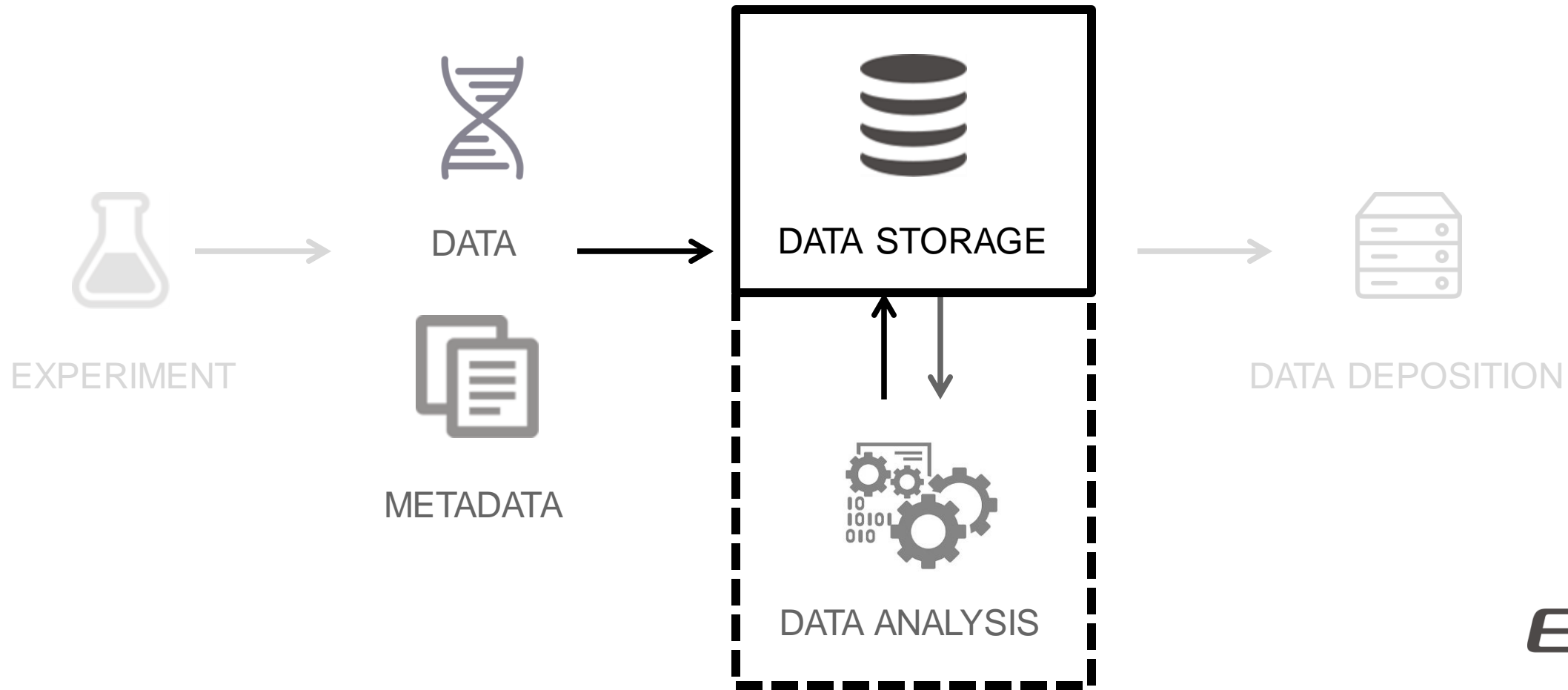
Erik Hjerde
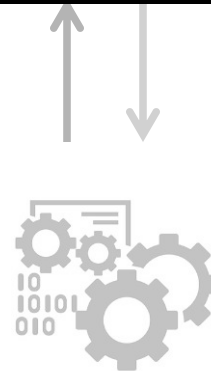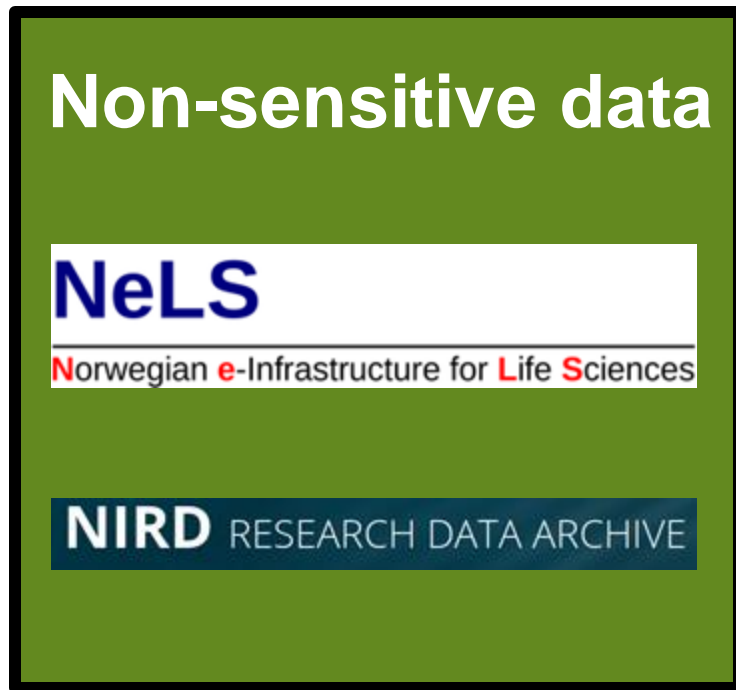
Data storage – from the researcher perspective

EXPERIMENT → DATA / METADATA → DATA STORAGE ⇄ DATA ANALYSIS → DATA DEPOSITION

Data storage – *from the researcher perspective*

EXPERIMENT

DATA

METADATA

DATA STORAGE

DATA ANALYSIS

DATA DEPOSITION

ELIXIR NORWAY

National storage infrastructures

Data storage in NeLS and StoreBioInfo (SBI)

Norwegian e-infrastructure for Life Sciences - developed and operated by Elixir Norway

NeLS in general

Available to all Norwegian researchers

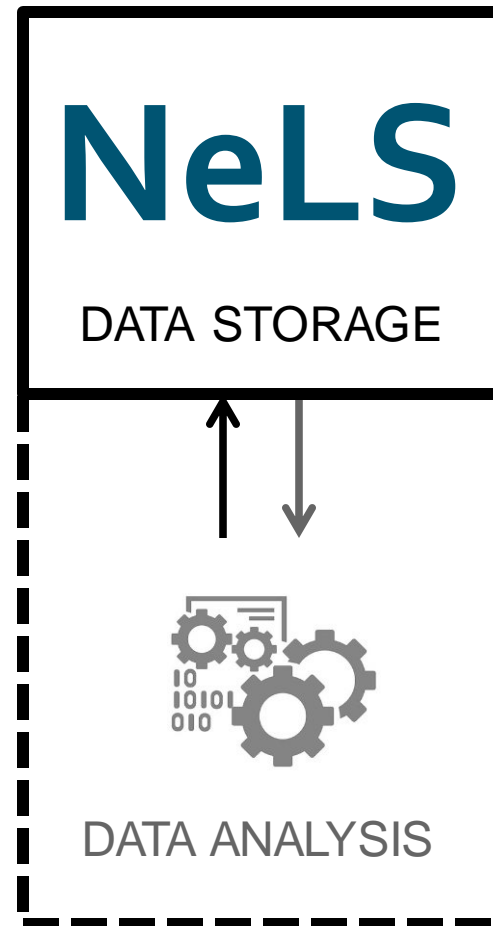Enable collaborative projects

Multiple storage layers

Integrated with compute

Multiple permission roles - shared data

Free of charge*

Support for data deposition

User support: Elixir Norway helpdesk

NeLS

DATA STORAGE

DATA ANALYSIS

Type of data

Non-sensitive data
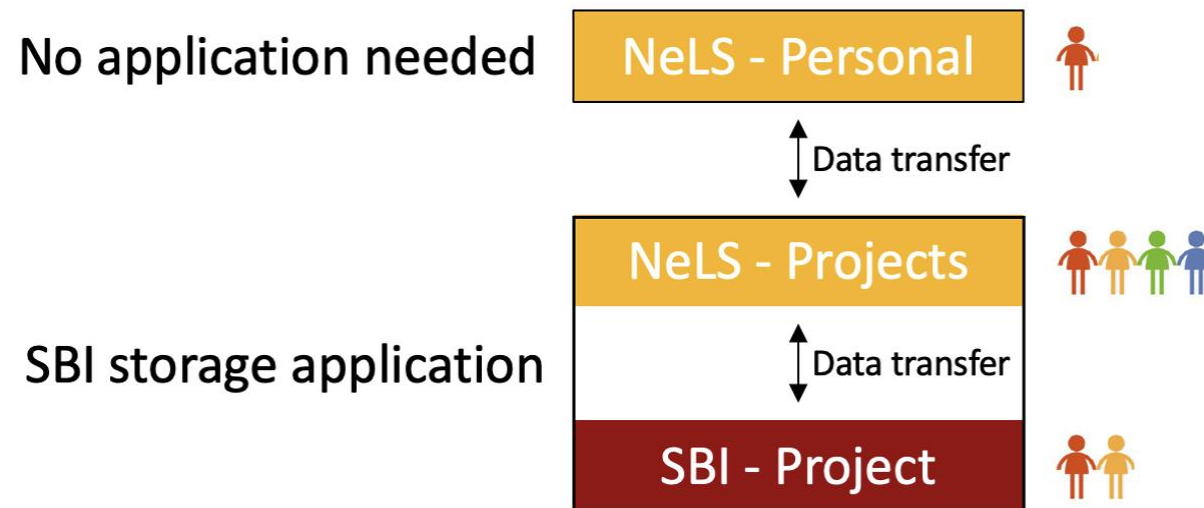
Support multiple data types

SEEK integration for metadata

Data storage in NeLS/SBI – How to get access

Storage application needed for projects where data is shared by many users

Access via FEIDE user or NeLS idp can be made for non-FEIDE users

Free storage < 10 TB

No application needed   **NeLS - Personal**

↕ Data transfer

SBI storage application   **NeLS - Projects**

↕ Data transfer

SBI - Project

Apply for storage: contact@bioinfo.no

Wiki for usage: https://nels-docs.readthedocs.io/en/latest/

ELIXIR NORWAY

Access data storage in NeLS

The NeLS portal can be accessed via a web browser at https://nels.bioinfo.no/ or via a

file transfer tool (e.g. Filezilla) or the command line SCP

NeLS architecture

SEEK - sharing heterogeneous scientific research datasets, models or simulations, processes and research outcomes

The SEEK platform is a web-based tool for organising and storing data, and for exploring and annotating data

Norwegian users can link datasets stored in NeLS to a SEEK project using FAIRdom hub
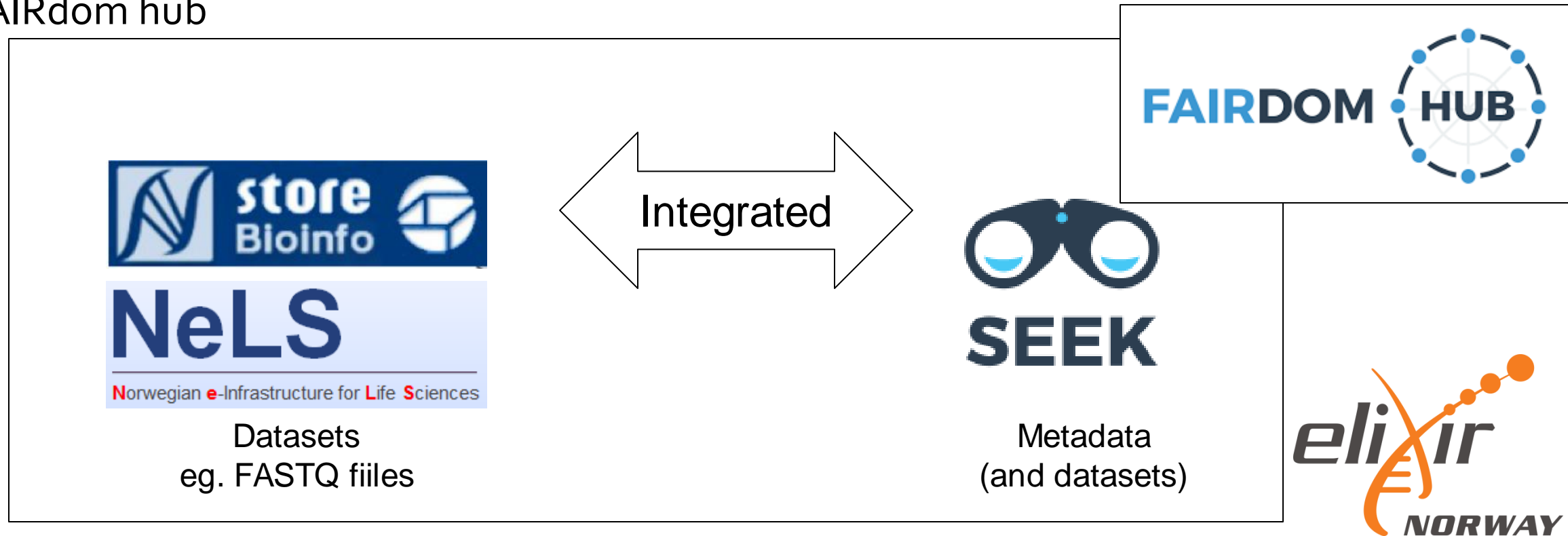
Data storage in NIRD

National e-Infrastructure for Research Data - owned and operated by UNINETT Sigma2

NIRD in general

Available to all users with account

Enable collaborative projects

Integrated with compute

Multiple permission roles - shared data

Free of charge*

User support: Metacenter support

NIRD
DATA STORAGE

DATA ANALYSIS

Type of data

Non-sensitive data

Support multiple data types

All type of scientific data*

Data storage in NIRD – How to get access
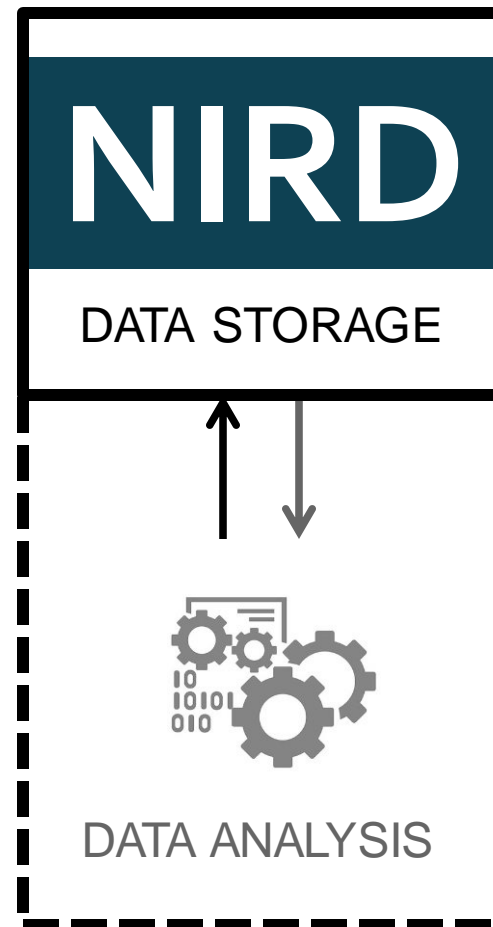
Apply for a UNINETT SIGMA2 user

Apply for a storage quota

Free storage < 10 TB

The process explained

1. **Submit user application**
2. **Signature by project management**
3. **Review by Sigma2**
4. **Set a password and log in**

Apply for user account: https://www.metacenter.no/user/application/

Apply for storage: https://www.sigma2.no/apply-e-infrastructure-resources

Wiki for usage: https://documentation.sigma2.no/index.html

Access data storage in NIRD

The NIRD storage can be accessed via the command line using SSH

Data import/export via command line tools such as SCP or SFTP or other file transfer tools (e.g. WinSCP)

Sensitive data storage

Non-sensitive data
NeLS
Norwegian e-Infrastructure for Life Sciences
NIRD RESEARCH DATA ARCHIVE

DATA STORAGE

Sensitive data
TSD
NTNU | HUNT Cloud

ELIXIR NORWAY
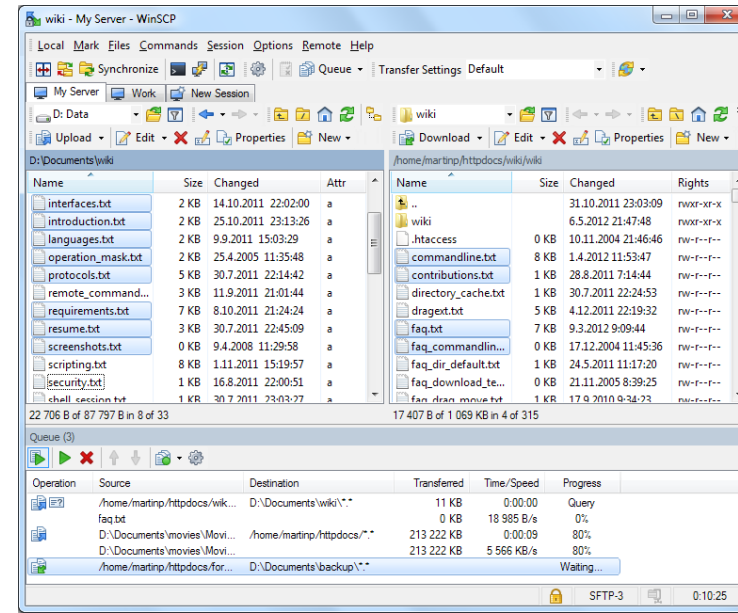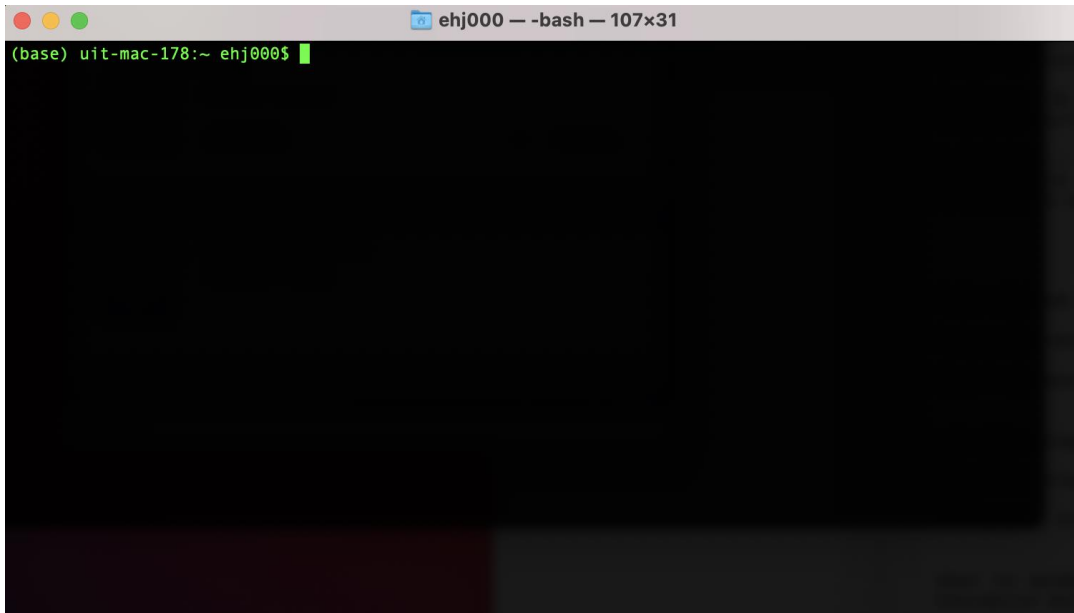
Data storage in TSD

National service for sensitive data - developed and operated by UiO
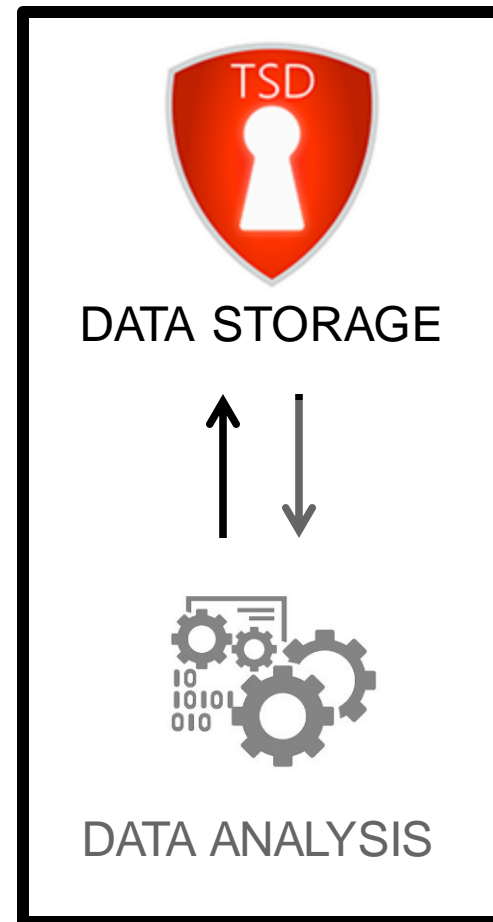
TSD in general

Available to all users with account

Enable collaborative projects

Integrated with compute

Multiple permission roles - shared data

User support: Tech and admin support

DATA STORAGE

DATA ANALYSIS
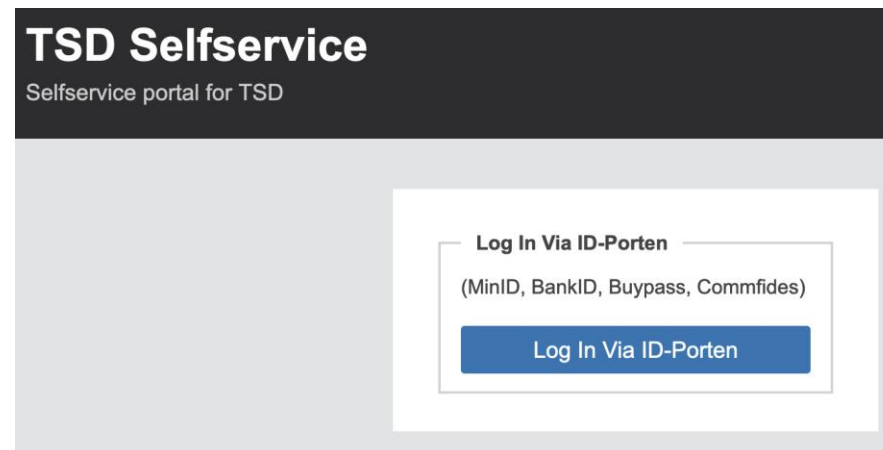
Type of data

Sensitive data

Support multiple data types

Data storage in TSD – How to get access

Apply for a project – need to document ethical approval (e.g. from REC)

Generate a TSD user – require 2-factor authentication

Payment models for storage


Generate user account: https://selfservice.tsd.usit.no/

Apply for project: https://www.uio.no/tjenester/it/forskning/sensitiv/hjelp/start/registrer.html

Wiki for usage: https://www.uio.no/tjenester/it/forskning/sensitiv/hjelp/start/index.html

Access to data storage in TSD

The TSD storage can be accessed via VMware Horizon + 2-factor authentication

Import/export data via the web file upload service
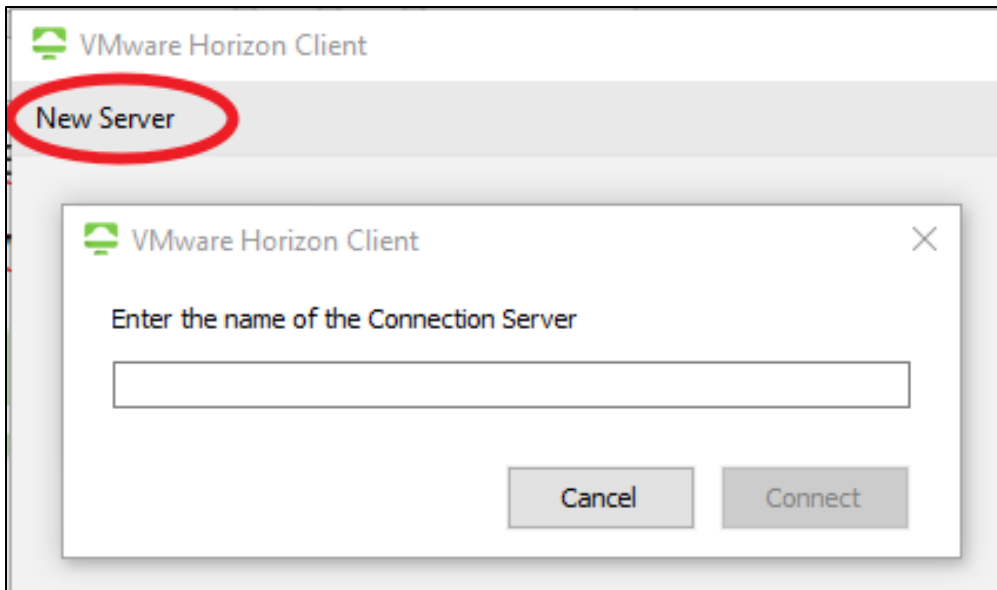
Where should I store and share my life science data?

	Sensitive data	Direct transfer from data producer	Web portal access	Command line access	Shared projects	Integration for metadata	Support for data deposition	Free of charge
NeLS/SBI	❌	✅	✅	✅	✅	✅	✅	✅
NIRD	❌	❌	❌	✅	✅	❌	❌	✅
TSD	✅	❌	❌	✅	✅	❌	❌	❌

elixir NORWAY

Example - Data flow/handle using ELIXIR Norway