



UiT Norges arktiske universitet

# How to use an electronic research notebook

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*The University Library*

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# What is an Electronic Lab Notebook (ELN)?

Alternatively: Electronic Research Notebook (ERN)

- An electronic service that replace the traditional paper lab notebook
- You can enter protocols, observations, notes, images, Word-files
- Create lab groups, share files and easily collaborate
- Browser-based - works on mobile, tablet and PC/Mac
- May integrate with other digital tools and workflows

# Learning outcomes

- Know how the use of an electronic lab notebook (ELN) fits with UiT's principles and guidelines for research data management
- Know what an ELN is and how it can be used in the active phase of research data management
- How to get started with RSpace Enterprise
- Know where to find more information and get help

Feel free to ask questions at any time

<http://site.uit.no/rdmtraining>

# Principles and Guidelines: The researcher

«The researcher shall ensure that the research data is securely stored, backed up, and archived» - § 4.3

«The researcher shall make the research data openly available for future use by all relevant users, providing this is not prevented by any legal, ethical, security, or commercial reasons»  
-§ 4.5

«Research data shall be equipped with standardized metadata that enable other researchers to search for and use the data» - § 4.6

«The FAIR principles serve as the foundation for UiT's research data management» § 1

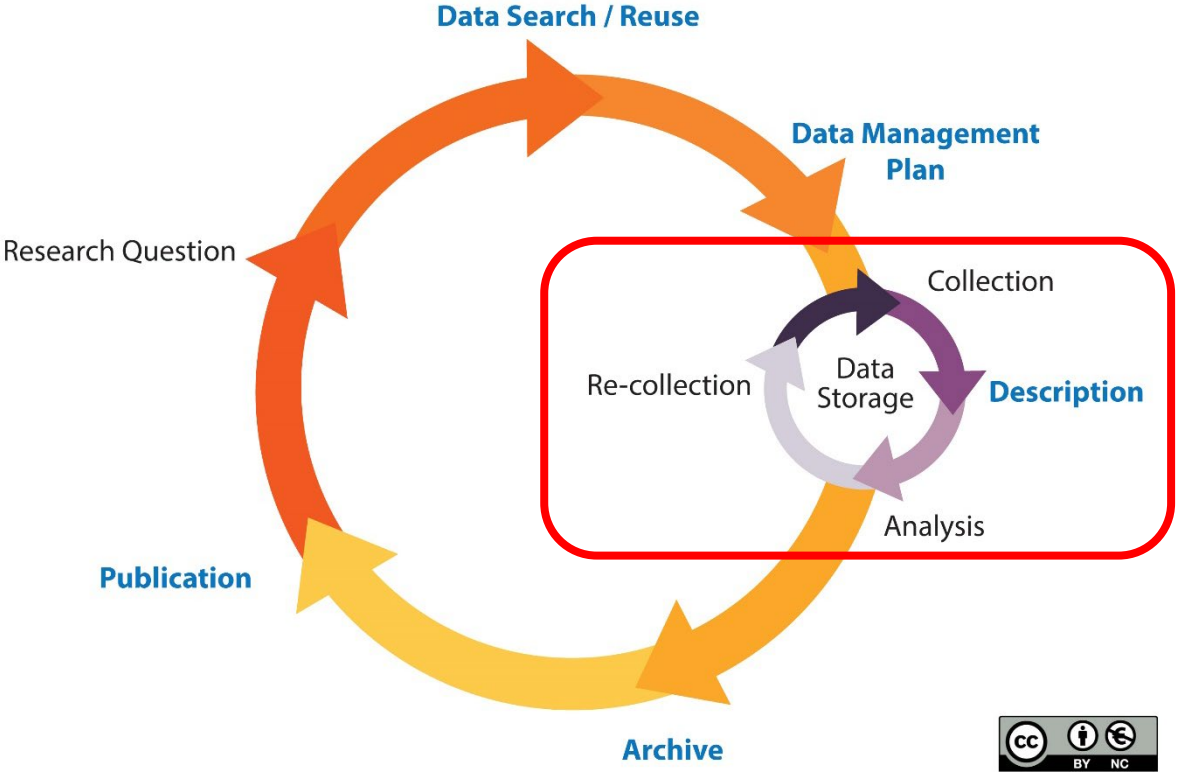
[Principles and guidelines for the management of research data at UiT](#)

# Principles and Guidelines: The university

«UiT shall offer basic services for processing, storing, as well as archiving of research data, either centrally at the home institution or in other suitable, quality assured infrastructure for storage and/or archiving of data. - §4.11

[Principles and guidelines for the management of research data at UiT](#)

# Research data lifecycle

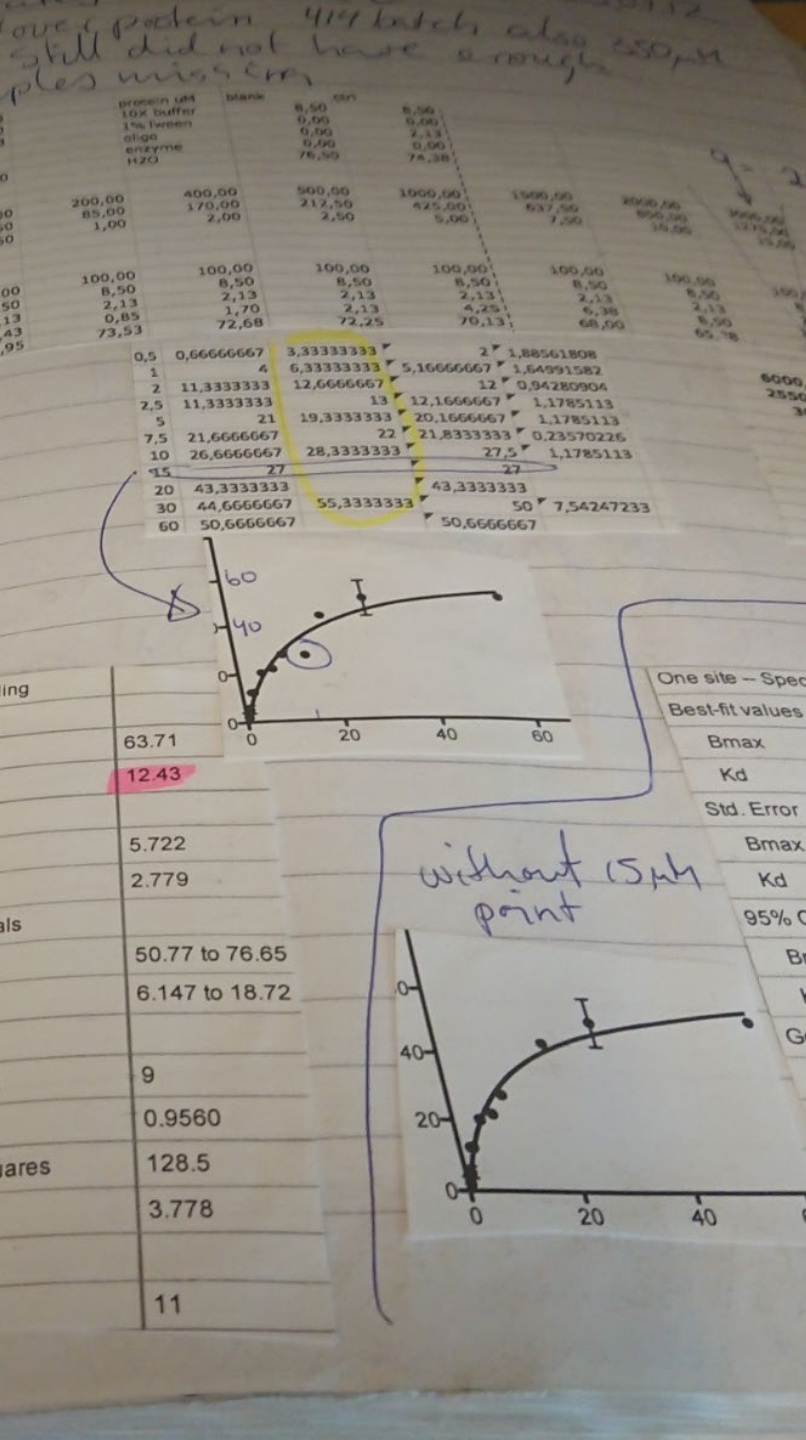




## Documenting lab work

- It is required to keep a lab note book
- It is a legal document
- It belongs to the research group or the institution





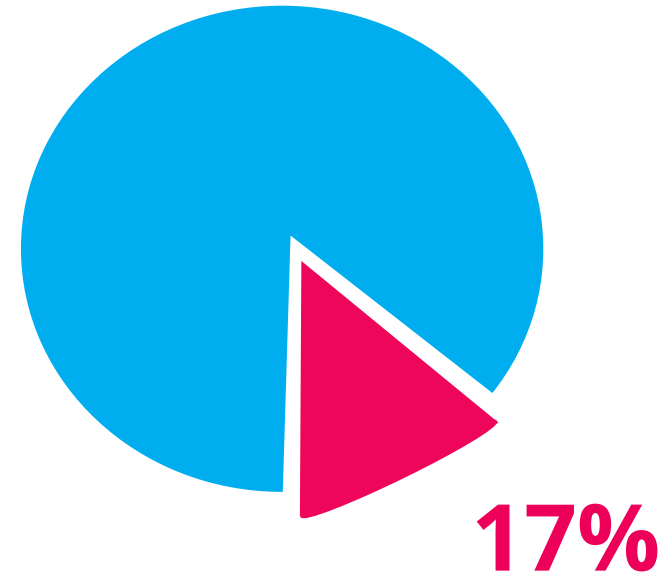
# Challenges with paper labnotebooks

- Students have to leave the book when they finish.
- Manual searching
- Difficult to interpret
- Needlessly repeating tasks
- Locating the data files.
- Loosing data



# Each year 17% of research data is lost.

Paper Notebooks are susceptible to damage, loss or removal by existing personnel.



([Vines et al. 2014](#): The Availability of Research Data Declines Rapidly with Article Age. *Current Biology*. 24(1):94-97)

The solution:

Using an Electronic  
Labnotebook ELN

# Data protection



## Back-up

Cloud-based service,  
data is continually  
backed up



## Files kept safe

No deleted data,  
audit tracking and  
intellectual property  
protection



## Preservation

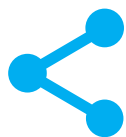
A researcher can leave  
UiT - but a copy of the  
data remains



## Best practice

Facilitates good  
data handling  
routines.

# Efficient workflow



## Data access

Information available to those who need it – when they need it



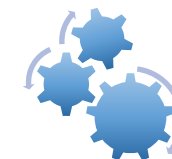
## Organization

All data stored at in one place and documents may be linked together.



## Timesaver

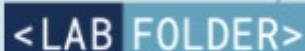
Advanced search and re-use of templates



## Integrations

External services (ChemDraw, Microsoft Word, Teams, OneDrive and DMP tools)

# Different flavours of ERNs



BOOK



# Criteria for ELN at UiT

- Generic and flexible
- Cloud storage within EU
- Secure system ensuring the access and integrity of the data
- Interoperability (I of FAIR)
- Possible to export files



RSpace

# Why RSpace?

- Possible to upload and store external files
- Unlimited storage capacity (320 MB max per file)
- Free student licenses for classroom use
- Easy to export all data
- Good support services
- Used at several large institutions
- Constantly under development and focuses on integrations with other services



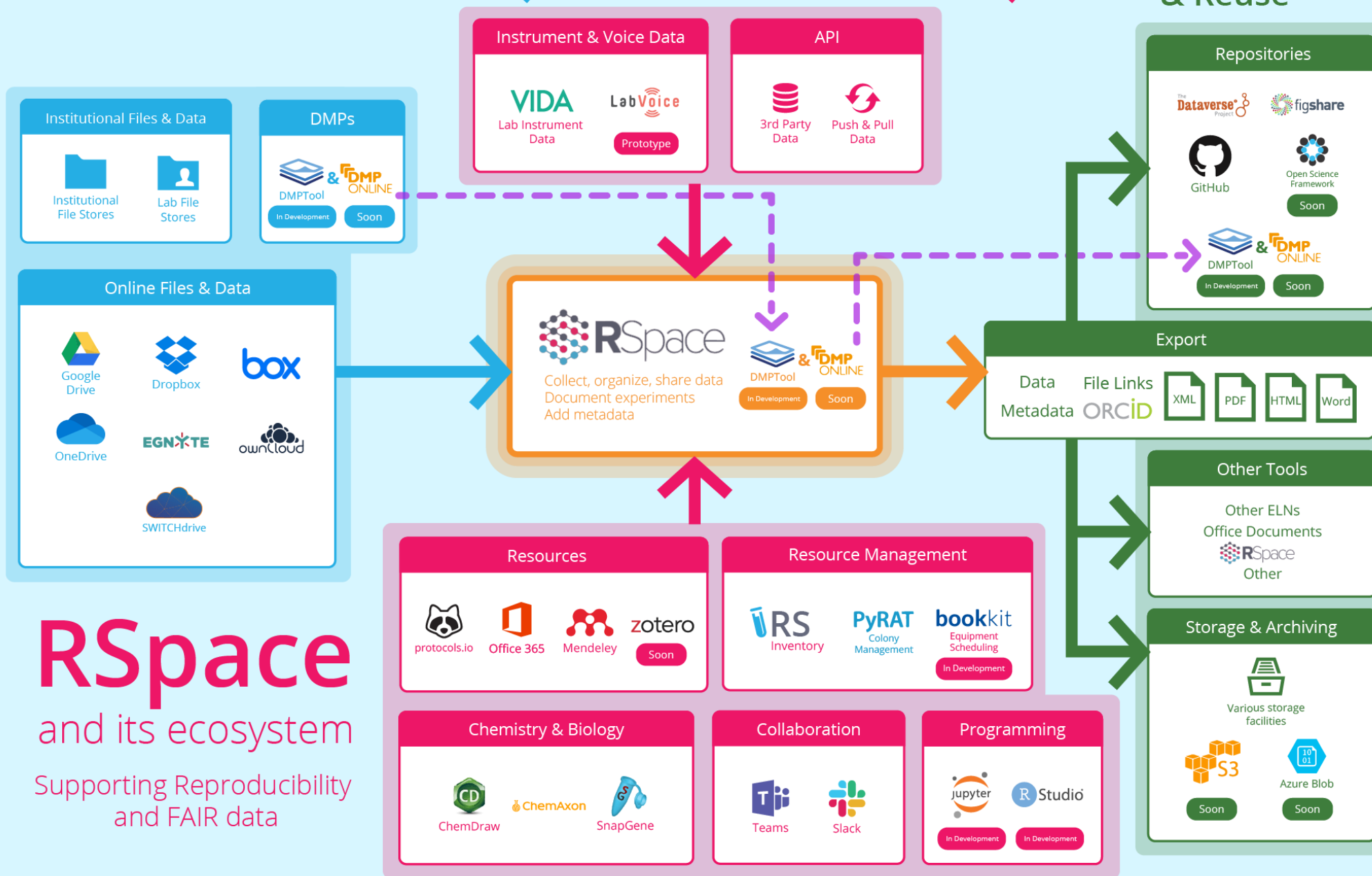
Approved by the  
IT-department



Preparation













Active Research

Archiving, Storage & Reuse



**RSpace**  
and its ecosystem  
Supporting Reproducibility  
and FAIR data

# Workspace

<input type="checkbox"/>	Type	Name	Created	Modified	ID	Owner
<input type="checkbox"/>		<a href="#">Test_document</a> 	2021-01-29 10:23	2021-02-15 13:08	SD2033	Cassandra Granlund Admin
<input type="checkbox"/>		<a href="#">RSpace</a> 	2021-02-08 14:07	2021-02-08 14:07	NB2400	Cassandra Granlund Admin
<input type="checkbox"/>		<a href="#">RSpace demonstration</a>	2021-02-02 13:44	2021-02-03 11:41	NB2118	Cassandra Granlund Admin
<input type="checkbox"/>		<a href="#">from_Well plate protocol_template</a>	2021-02-02 13:32	2021-02-02 13:32	SD2114	Cassandra Granlund Admin
<input type="checkbox"/>		<a href="#">Well plate protocol</a>	2021-02-02 13:17	2021-02-02 13:22	SD2106	Cassandra Granlund Admin
<input type="checkbox"/>		<a href="#">Arctic EcoSens</a>	2021-01-29 10:14	2021-01-29 10:14	FL2018	Cassandra Granlund Admin
<input type="checkbox"/>		<a href="#">Imports</a>	2021-01-26 16:07	2021-01-26 16:07	FL1948	Cassandra Granlund Admin
<input type="checkbox"/>		<a href="#">Chemistry data sheets</a>	2021-01-07 16:25	2021-01-07 16:25	FL534	Cassandra Granlund Admin
<input type="checkbox"/>		<a href="#">Extract Protocol for ChIP</a>	2021-01-07 16:25	2021-01-07 16:24	SD526	Cassandra Granlund Admin
<input type="checkbox"/>		<a href="#">Templates</a>	2021-01-07 16:25	2021-01-07 16:24	FL525	Cassandra Granlund Admin

# Types of documents



Basic document: The simplest form of document available in RSpace



Structured document: Forms and templates



Folder: Organize your documents and notebooks



Notebook: Designed to reproduce the structure of a traditional lab notebook with chronological entries

# Gallery


CHOOSE GALLERY

IMPORT

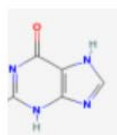
By name or unique ID...




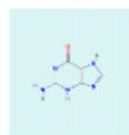
Order by ▾  Select All

 New Folder

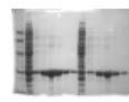
## Image Gallery




  
guanine\_edited.png




  
guanine.png




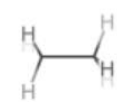
  
Rensefraksjoner.tif



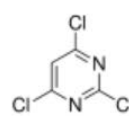
  
PCR\_prod.PNG




  
EndoIII2\_2C4\_foer\_rotting\_rundt07...



  
ethane.jpg



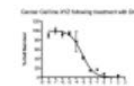
  
2,4,6-Trichloropyrimid...




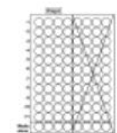
  
storage.jpg



  
E1\_Picture1.png



  
E2\_Picture2.png



  
E2\_Picture1.png



  
Examples

# Inventory

## Location of samples

### Locations and Content

Search

Open Select

	1	2	3	4	5	6
A						6
B					11	12
C					17	18

## Track material consumption

### List of Materials (Inventory)

List Name

Safety Check Materials

Description

This is a list containing the samples used in the experiment that require safety checks.  
Review this before starting

**Add items** Tip: to edit an item click its Global ID, then the Edit button in the new browser tab.  
You can update the cumulative used quantity for a subsample by clicking the Consumed Quantity button.

Name	Consumed Quantity	Inventory Quantity	Location	Global ID
a.01	✗ 0 ml	500 µl		SS2228224
anti-ABHD6_HUMAN.02	✗ 0 ml	11.74 ml	Lab Antibodies - mitosis	SS1377412
anti-ABHD6_HUMAN.03	✗ 0 ml	11.74 ml	Lab Antibodies - mitosis	SS1377413
anti-ABHD6_HUMAN.01	✗ 0 ml	9.74 ml	grid container	SS1377411
anti-ABHD6_HUMAN.04	✗ 0 ml	11.74 ml	Lab Antibodies - mitosis	SS1377414

## List of Materials (Inventory)

List Name

Waffles

ID

65538

Description

Yum

Add items



Tip: to edit an item click its Global ID, then the Edit button in the new browser tab.  
You can update the cumulative used quantity for a subsample by clicking the Consumed Quantity button.

Name		Consumed Quantity	Inventory Quantity	Location	Global ID	Owner
Baking powder.01		<input type="text" value="7 g"/>	0 g	Baking powder	SS983147	Cassandra Granlund
Baking soda .01		<input type="text" value="3.5 g"/>	46.5 g	Baking soda	SS983177	Cassandra Granlund
Flour.01		<input type="text" value="350 g"/>	650 g	Flour	SS983086	Cassandra Granlund
Milk (1%) .01		<input type="text" value="0.15 l"/>	350 ml	Milk	SS983106	Cassandra Granlund
Eggs.06		<input type="text" value="60 g"/>	0 g	Egg carton	SS983077	Cassandra Granlund
Eggs.07		<input type="text" value="60 g"/>	0 g	Egg carton	SS983078	Cassandra Granlund
Soured milk.01		<input type="text" value="0.2 l"/>	800 ml	Soured Milk	SS983187	Cassandra Granlund
Sugar.01		<input type="text" value="100 g"/>	900 g	Sweet	SS983127	Cassandra Granlund

DELETE LIST

CLOSE

SAVE

RSpace

Search

3 top-level containers found.

Containers

	Name	Global ID
<input type="checkbox"/>	Freezer	IC884739
<input type="checkbox"/>	Fridge	IC884738
<input type="checkbox"/>	Pantry	IC884742

1-3 of 3

RSpace ELN

Need Help?

Sign Out



# Inventory



# Lab groups

- Promotes collaboration through instant sharing of documents with the whole group
- Easily accessing individuals in your group
- Sharing data = in the same lab group
- Project based groups
- One can be a member of several lab groups



# Roles



PI



Lab Admin



Users

# Role: PI

- The leader of the lab group - only one!
- Add and remove users from the lab group
- Organize content that is shared within the group
- Create collaboration groups with other PIs
- View and search the audit trail
- Export and archive the group's work
- View content created by group members: group members' work is automatically shared with the PI



# Role: Lab Admin

- Can be as many Lab Admins as the group want
- Permission to administer the group
- Add/remove members
- Edit the group's page
- Can be given the ability to view all content by PI



# Role: Users

- Can create and edit documents
- Share documents with the lab group
- Cannot administer the group's membership
- Can view other users' documents in an open lab
- Users do not have permission to view other users' documents a closed lab



# Closed lab

## PI

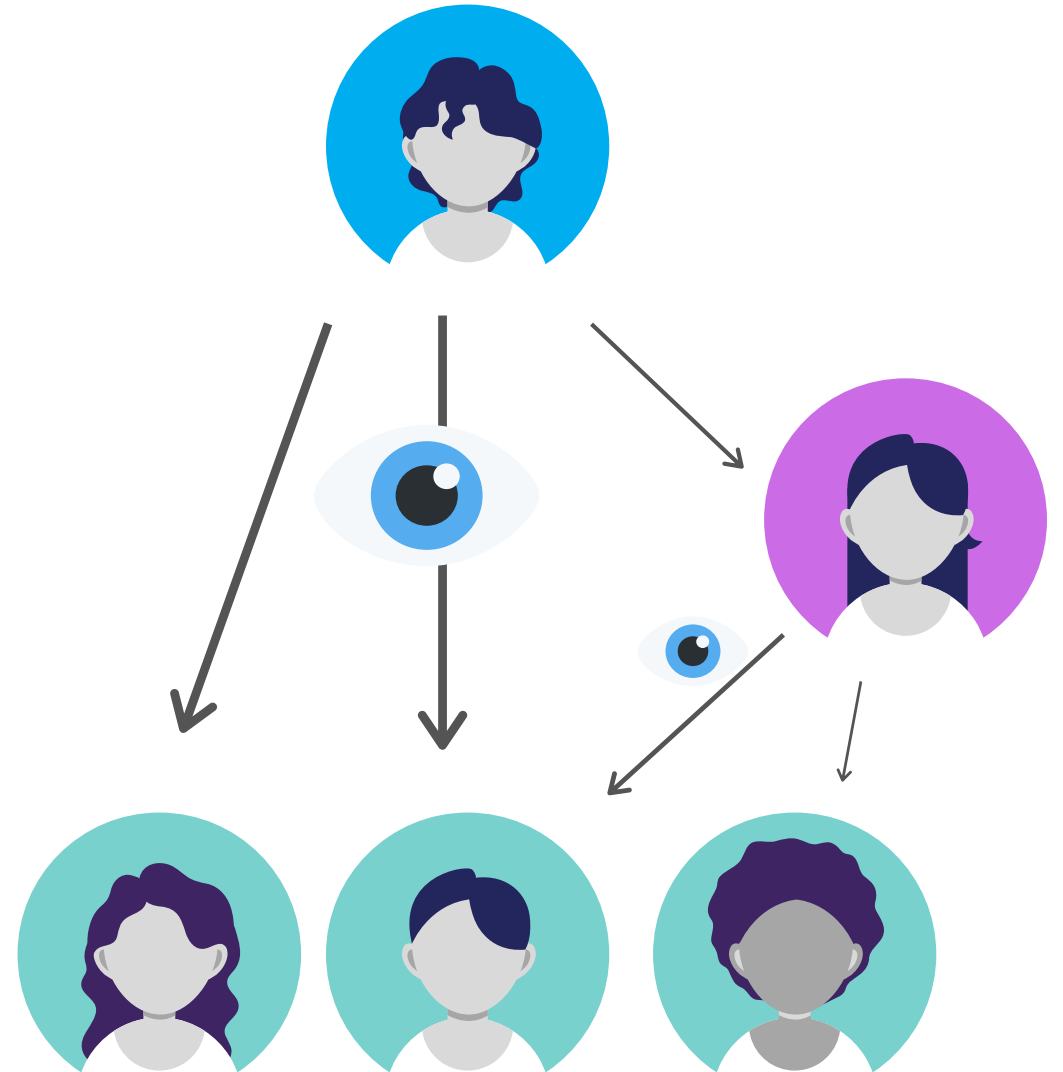
View all documents owned by members of the group

## Lab Admin

PI can grant viewing access to users' documents

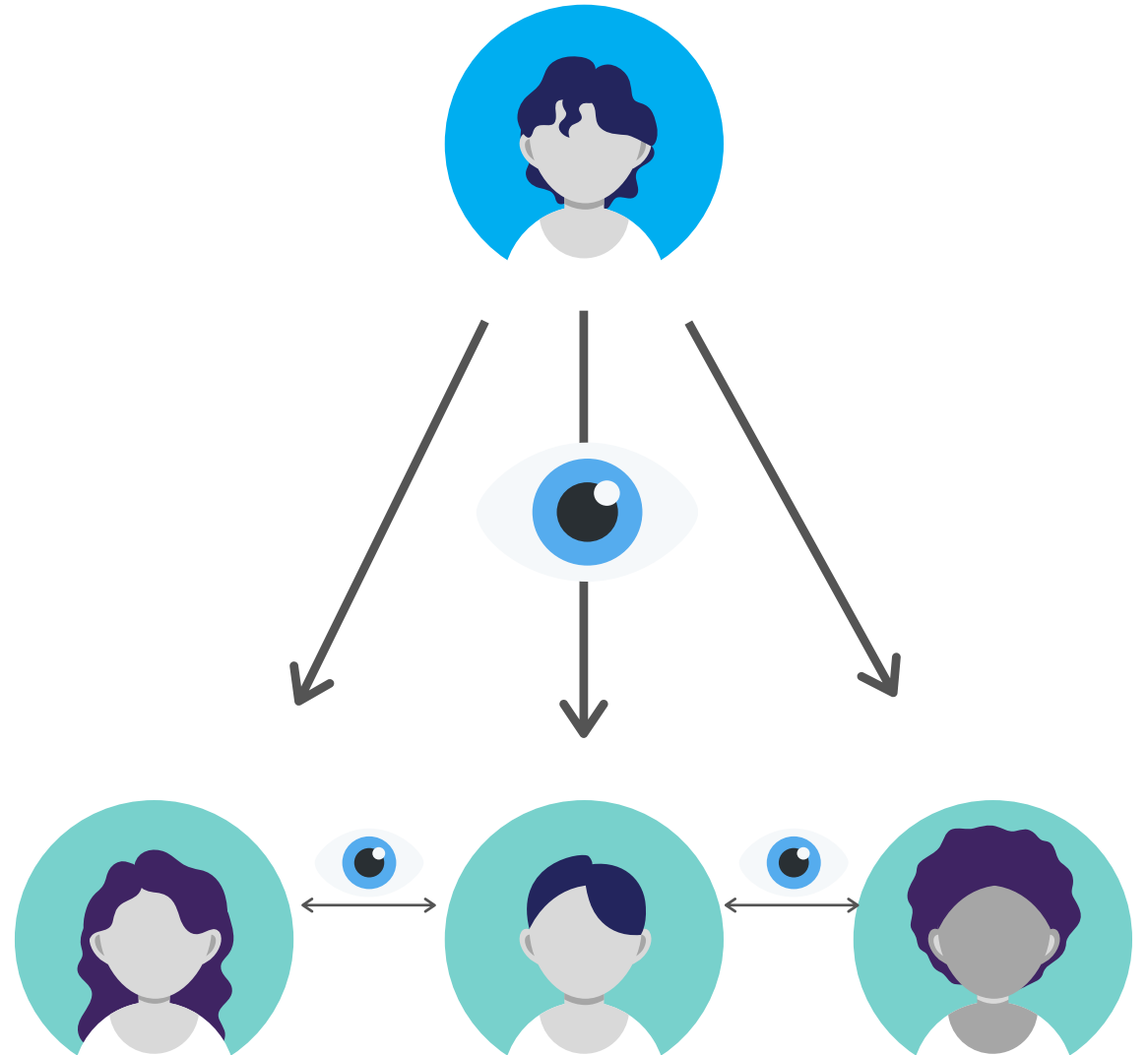
## Users

Must share documents for them to be visible for other users



# Open lab

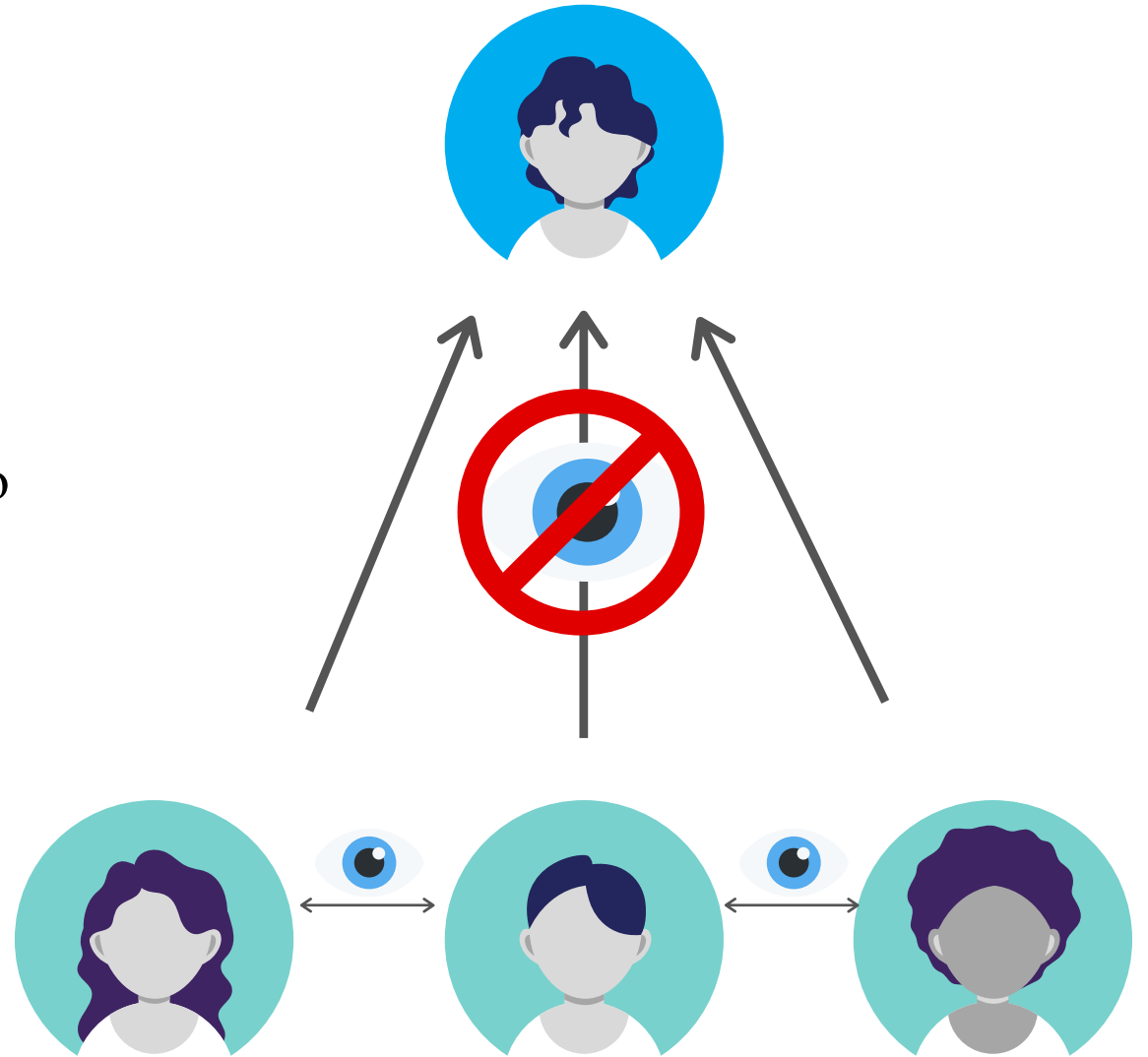
PI and users can see all the documents stored in the lab group members' workspace, unless it is «unshared» by the user





# Open lab

Users will not be able to see PIs documents, unless they are shared into a folder or notebook



Livedemo av RSpace

[uit-rspace.researchspace.com](http://uit-rspace.researchspace.com)



# Need more info or help?

## UiT Research Data Portal:

[https://en.uit.no/research/research-dataportal/art?p\\_document\\_id=729174](https://en.uit.no/research/research-dataportal/art?p_document_id=729174)

## Email:

[researchdata@hjelp.uit.no](mailto:researchdata@hjelp.uit.no)



"Help!" by [lydia\\_shiningbrightly](#) is licensed under [CC BY2.0](#)

# Interactive RSpace workshop

- 2.5 hours
- Detailed walkthrough of RSpace
- Practical exercises
- Upon request for research groups
- Open workshop to be announced on Tavla