

## Extended Data 2: Questionnaire

### Research Data Management for Bioimaging: The 2021 NFDI4BIOIMAGE Community Survey

Christian Schmidt<sup>1,2\*</sup>, Janina Hanne<sup>3\*</sup>, Josh Moore<sup>3,4</sup>, Christian Meesters<sup>5</sup>, Elisa Ferrando-May<sup>1,2,3</sup>, Stefanie Weidtkamp-Peters<sup>3,6</sup>, and members of the NFDI4BIOIMAGE initiative

1 German Cancer Research Center (DKFZ), Department Enabling Technology, Heidelberg, Germany

2 University of Konstanz, Department of Biology, Bioimaging Center, Konstanz, Germany

3 German BioImaging - Gesellschaft für Mikroskopie und Bildanalyse e.V.

4 University of Dundee, Open Microscopy Consortium, Dundee, Scotland, UK

5 University of Mainz, High Performance Computing Group, Mainz, Germany

6 Heinrich-Heine University of Düsseldorf, Center for Advanced Imaging, Düsseldorf, Germany

\*equal contribution; correspondence should be addressed to Christian Schmidt: [christian01.schmidt@dkfz-heidelberg.de](mailto:christian01.schmidt@dkfz-heidelberg.de), or

Janina Hanne: [Janina.hanne@gerbi-gmb.de](mailto:Janina.hanne@gerbi-gmb.de)

- Full questionnaire as shown online to participants, annotated with comments

---

### NFDI4BIOIMAGE Community Survey 2021

- Page 1 of 18 - Welcome

6%

- Welcome to the NFDI4BIOIMAGE community survey.

Participation takes about 20 - 25 minutes and is anonymous. Your answers will help to shape our work programme to improve bioimage data handling. Results (or parts of it) will be used for participation in the NFDI, which might include sharing with other initiative members, collaborating consortia, and making results publicly available.

No information to identify you in person will be asked, with the exception that your IP-address is temporarily stored for technical reasons. Review

<https://nfdi4bioimage.de/en/get-involved/datenschutz-info/>  
for information on data privacy protection.

Please do not look up additional information after reading the questions. Answers should be spontaneous to the best of your knowledge.

Note: you can pause the survey and resume later. We will have no access to the e-mail address you submit.

This survey is run by the NFDI4BIOIMAGE initiative in collaboration with German BioImaging.  
Contact: Dr. Christian Schmidt, University of Konstanz, email: [nfdi4bioimage@uni-konstanz.de](mailto:nfdi4bioimage@uni-konstanz.de)

- \*

☐ I agree to the terms above. Let's start the survey!

☐ I do not agree (abort participation).

- Thank you for your consideration.

To abort your participation, please close this window. Thank you very much for your consideration and goodbye.

[Continue](#)

**Kommentiert [CS1]:** Logic: If „I do not agree (abort participation)“ is checked

• **I work at / I am affiliated with:**

- ☐ a public university (incl. of applied sciences) or public state research institute
- ☐ a non-profit research institute or association (e.g., Max-Planck-Institute, Fraunhofer Institutes)
- ☐ a private sector company / industry vendor
- ☐ Other

Kommentiert [SC2]: Q2-1

• **My current (primary) position is located in**

- ☒ Germany
- ☐ an EU country, but not Germany
- ☐ a non-EU European country (inc. the UK)
- ☐ a country outside of the EU

Kommentiert [SC3]: Q2-2

• **My current (primary) position is:**

- ☐ undergraduate student (Bachelor or Master)
- ☐ PhD student
- ☐ post-doctoral researcher
- ☐ permanent-term research staff
- ☐ research manager
- ☐ head of a research support facility
- ☐ junior group leader
- ☐ senior group leader / professor
- ☐ Other

Kommentiert [SC4]: Q2-3: Used to sub-categorize participant groups

[Continue](#)

[Previous](#)

• **Which discipline describes your work / research best? \***

- ☐ plant biology
- ☐ microbiology
- ☐ animal biology
- ☐ human biology / preclinical medicine
- ☐ immunology / infection biology
- ☐ oncology / clinical medicine
- ☐ neuroscience / neurobiology / study of behavior
- ☐ ecology / environmental biology
- ☐ pharmacology / toxicology
- ☐ biophysics
- ☐ biophotonics / medical photonics
- ☐ theoretical biology
- ☐ didactics of biology
- ☐ research support (management, coordination, IT-services, etc)
- ☐ NO involvement in research at all
- ☐ Other

**Kommentiert [SC5]:** Q3-1: Obligatory, up to three answers allowed

• **Which methodological approach(es) describe your work best? \***

- ☐ chemical biology
- ☐ biochemistry
- ☐ molecular biology
- ☐ cell biology
- ☐ bioinformatics and data science
- ☐ biotechnology or systems biology
- ☐ animal studies
- ☐ clinical trial
- ☐ analytical chemistry
- ☐ none (no research involvement)
- ☐ Other

**Kommentiert [SC7]:** Q3-2: Obligatory, up to three answers are allowed

[Continue](#)

[Previous](#)

3Page 3 of 18

• The following questions concern the use of specific methods in your research.

"Use a method" means: You spend time on at least one aspect (or more) of:

- experiment planning
- sample / specimen preparation
- setting up an instrument for acquisition
- acquiring (digital) data
- analyzing and/or interpreting data
- data curation, data publication or data storage

- Your answers should be representative for the last 12 months of your work and your plans for up to the next 12 months.

- ☐ The instructions are clear; show questions.

**Kommentiert [SC8]:** Used as attention check. The next question is only shown if this is checked

- **Does your work include working with bioimaging or biophotonics methods?**

**Kommentiert [SC9]:** Q4-1: Depending on the answer, a different set of questions is shown. See logic sheet for details

- ☐ yes, I use bioimaging or biophotonics methods
- ☐ no, I do not use bioimaging or biophotonics methods
- ☐ I am not sure if one my methods is a bioimaging or biophotonics method

- 

[Continue](#)

[Previous](#)

- Please state if your work includes the following method(s):

Kommentiert [SC10]: Q5-1

	Yes, I use(d) this method	I know, but do NOT use this method	No, I do not know this method
Bright-field / dark-field / phase-contrast (e.g., histology)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Epifluorescence light microscopy	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Confocal (fluorescence) microscopy	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Selective plane illumination / light sheet microscopy	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Two-/multi-photon (intra-vital) microscopy	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Super-resolution microscopy (SIM, STED, STORM, etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2D electron microscopy (REM, TEM)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3D electron microscopy (tomography, cryo-EM)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Correlated light and electron microscopy (CLEM)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Optical coherence tomography	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Live imaging / time series	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Whole slide scanners / digital pathology	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
FLIM / FRET / FRAP or similar	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
(Hyper-)spectral imaging	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Spectroscopy techniques (e.g., Raman spectroscopy)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
preparatory imaging techniques (e.g., laser-capture microdissection)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

- Which preparatory imaging method do you use?

Kommentiert [SC11]: Q5-1-1: Only shown if „preparatory imaging techniques” is checked

- Which down-stream processing do you apply after preparatory imaging?

Kommentiert [SC12]: Q5-1-2: Only shown if „preparatory imaging techniques” is checked

- Are there other bioimaging techniques of particular importance for you?

Kommentiert [SC13]: Q5-1-3

- Imagine you had to choose ONE method as the single most important method, which one is it?

Kommentiert [SC14]: Q5-2: Only shown, if at least one method above was checked with “Yes, I use(d) this method”

- **You did not state to use any of the methods above or in the drop-down menu, but you might or might not still be working with bioimaging data, e.g., in bioimage informatics.**  
**How would you like to proceed this survey?**

- ☐ proceed with questions on bioimage analysis
- ☐ proceed with questions about general research data management

**Kommentiert [SC15]:** Shown if no item in Q5-1 is checked for "Yes, I use(d) this method"

[Continue](#) [Previous](#)

5Page 5 of 18

- **It seems you do not use any bioimaging technique, but you might or might not still be working with bioimaging data, e.g., in bioimage informatics.**  
**How would you like to proceed this survey?**

- ☐ proceed with questions on bioimage analysis
- ☐ proceed with questions about general research data management

**Kommentiert [SC16]:** Page 6 is shown, if on page 4 "No, I don't use bioimaging methods" was checked  
See Conditional Logic for more details

[Continue](#) [Previous](#)

6Page 6 of 18

### Your most important method

The next questions will be about your chosen most important method

- **Why did you declare that technique as single most important?**

- ☐ high frequency of use in my work
- ☐ most time spent on technique per experiment
- ☐ best effort-to-output ratio (i.e., easy method delivering good results)
- ☐ strongest answers to my research questions possible
- ☐ personal preference or interest
- ☐ most often used in publications I (co-)authored
- ☐ I am (co-)developing this technique or related applications
- ☐ Other

Kommentiert [SC17]: Q7-1

- **How much time on average do you spend on the technique, including all steps you are involved in?**

- ☐ < 1 hour per month (rarely)
- ☐ 1 – 30 hours per month (< 1 h per week) (occasionally)
- ☐ 1 – 6 hours per week (< 1 h per day) (regularly)
- ☐ 1 – 6 hours per day (frequently)
- ☒ > 6 h per day (continuously, all the time)

Kommentiert [SC18]: Q7-2

- Mark in which steps of using the method you are involved:**

- ☐ experiment planning
- ☐ practical instrument setup
- ☐ sample / specimen preparation
- ☐ data acquisition / recording
- ☐ data processing & analysis
- ☐ data curation / annotation / figure preparation

Kommentiert [SC19]: Q7-2 (multiple answers possible)

- **Which of these steps is the most time consuming for you?**

Kommentiert [SC20]: Q7-4

- **Thinking about your career in total, how long have you been working with (any aspect of) your most important technique on a regular basis (> 1 h per day on average)?**

Answer in years (e.g., "2.5"):

Maximum of **4 characters** allowed. *Currently Entered: 0 characters.*

Kommentiert [SC21]: Q7-5

Continue

Previous

- Bioimaging/Biophotonics methods in general

Following questions are NOT about your one most important technique, but on the use of bioimaging/biophotonics methods in general (in the last 12 months and your plans for up to the next 12 months).

- ☐ The instructions are clear

- **When you plan using a new bioimaging technique or instrument, which information source(s) do you use?**

- ☐ My supervisor / PI
- ☐ Online learning material
- ☐ Participation in a dedicated workshop
- ☐ Textbooks and publications
- ☐ Official documentation by the vendor
- ☐ Service contact by the vendor
- ☐ Staff member at my core facility
- ☐ A national or international Bioimaging Hub
- ☐ Other

Kommentiert [SC22]: Q8-1

- **Does your research involve image processing and (quantitative) image analysis?**

Check what applies to the majority of your work.

If both a considerable fraction is performed by yourself and another considerable fraction by an external partner, please start with answer 2 or 3 here. \*

- ☐ No, I / we do not perform any image processing and analysis
- ☒ Yes, I / we perform image processing (e.g., de-noising, adjustments, etc.), but no quantitative analysis
- ☐ Yes, images are quantitatively analyzed by myself or within my research group
- ☐ Yes, image analysis is performed by a collaboration partner, not by myself or my group
- ☐ Yes, image analysis is performed together with an imaging core facility specialist

Kommentiert [SC23]: Q8-2

Kommentiert [CS24]: Logic: forward to page 8

Kommentiert [CS25]: Logic: forward to page 9

[Continue](#)

[Previous](#)



- Image Analysis - Self

- **How do you perform processing and image analysis with your images?**

- ☐ visual inspection mainly (e.g. manual feature counting)
- ☐ analysis software, manually performing image processing/analysis steps
- ☐ analysis software, partially automated (e.g. using Macros, scripts, etc.)
- ☐ analysis software in highly automated pipelines (might include several programs)

Kommentiert [SC26]: Q9-1

- **Do you use web-applications for image processing / analysis (i.e., without desktop installation)?**

- ☐ No, not at all
- ☐ Yes, occasionally
- ☐ Yes, regularly
- ☐ Yes, most of the time

Kommentiert [SC27]: Q9-2

- **Which of the following image processing / analysis software are you using in your research?**

- ☐ ImageJ / Fiji
- ☐ Clij / Clij2
- ☐ Ilastik
- ☐ Napari
- ☐ Cell Profiler
- ☐ KNIME
- ☐ Matlab
- ☐ Icy
- ☐ IMARIS
- ☐ Huygens
- ☐ Python (+ scikit-image / openCV)
- ☐ Neuralab
- ☐ proprietary software from instrument manufacturer
- ☐ Other

Kommentiert [SC28]: Q9-3

- **Considering your education in applying bioimage analysis: What were or are your primary sources to learn how to perform bioimage analysis?**

- ☐ Part of my (undergraduate) studies
- ☐ Self-education using textbooks and publications
- ☐ Self-education using web-resources and video-tutorials
- ☐ Participation in (one or more) dedicated workshops
- ☐ Direct education by a trained image analyst in our group or facility
- ☐ Other

Kommentiert [SC29]: Q9-4

- **Regarding the use of the image processing / analysis tools or software, how do you see yourself?**

- ☐ completely inexperienced
- ☐ beginner
- ☐ advanced user
- ☐ skilled professional
- ☐ highly qualified expert

- **In addition to your own image processing and analysis work, is a considerable fraction of processing and analysis performed by a collaboration partner or core facility specialist?**

- ☐ Yes, a considerable part of my data processing and analysis is performed externally
- ☐ No or only to a small extent

•

**Kommentiert [SC30]:** Q9-5

**Kommentiert [SC31]:** Q9-6

**Kommentiert [CS32]:** Logic: If this is checked, then page 9 is shown, too

[Continue](#)

[Previous](#)

- Image Analysis - external
- **What are reasons that image processing and/or analysis is not performed by yourself or your group? (check all that apply)**

- ☐ I / we do not have the necessary expertise
- ☐ lack of computational hardware
- ☐ lack of necessary software
- ☐ established collaboration with the partner, alleviating workload on my / our side
- ☐ Other

Kommentiert [SC33]: Q10-1 (multiple answers possible)

- **Is part of the analysis run on a dedicated compute cluster (e.g., high performance computing)?**

- ☐ No
- ☐ I don't know
- ☐ Yes, at institutional level
- ☒ Yes, at state level
- ☐ Yes, at national level
- ☐ Yes, at international level

Kommentiert [SC34]: Q10-2

- **How do you share your image data files with your collaboration partner(s)?**

- ☐ sending via E-Mail
- ☐ sending on hard drive via mail
- ☐ shared cloud storage - commercial provider
- ☐ shared cloud storage - institutional / federal provider
- ☐ own servers providing external access
- ☐ upload onto a server at the collaboration partner site
- ☐ Other

Kommentiert [SC35]: Q10-3 (multiple answers possible)

- **How does the collaboration partner or core facility specialist perform processing and image analysis with your images?**

- ☐ visual inspection mainly (e.g. manual feature counting)
- ☐ analysis software, manually performing image processing/analysis steps
- ☐ analysis software, partially automated (e.g. using Macros, scripts, etc.)
- ☐ analysis software in highly automated pipelines (might include several programs)
- ☐ I do not know for sure

Kommentiert [SC36]: Q10-4

- **Does the collaboration partner or core facility specialist use web-applications for image processing / analysis (i.e., without desktop installation)?**

- ☐ No, not at all
- ☐ Yes, occasionally
- ☐ Yes, regularly
- ☐ Yes, most of the time
- ☐ I do not know

Kommentiert [SC37]: Q10-5

- **Which of the following image processing / analysis software does your collaboration partner or core facility specialist use for your research?**

- ☐ ImageJ / Fiji
- ☐ Clij / Clij2
- ☐ Ilastik
- ☐ Napari
- ☐ Cell Profiler
- ☐ KNIME
- ☐ Matlab
- ☐ Icy
- ☐ IMARIS
- ☐ Huygens
- ☐ Python (+scikit-image / openCV)
- ☐ Neuralab
- ☐ proprietary software from instrument manufacture
- ☐ I do not know which software is used
- ☐ Other

Kommentiert [SC38]: Q10-6

- **Regarding your own knowledge about image processing / analysis tools or software, how do you see yourself?**

- ☐ completely unexperienced
- ☐ beginner
- ☐ advanced user
- ☐ skilled professional
- ☒ highly qualified expert

Kommentiert [SC39]: Q10-7

[Continue](#)

[Previous](#)

Image Analysis in general

- What is your opinion on the following statements?

Kommentiert [SC40]: Q11-1

	I fully agree	I partially agree	undecided	I rather disagree	I disagree fully
I know well which image analysis methods exist in general and what they are used for	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I know what is (or would be) the optimal way to perform image analysis for my research question	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other image analysts could get more information relevant for my research out of my data	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I have previously experienced problems in understanding and/or reproducing image analysis steps from other researchers	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Image analysis steps performed with my data can be easily reproduced by others on the basis of my documentation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

- Think of image data sharing with researchers who are NOT direct collaborators. What is your opinion on the following statements?

Kommentiert [SC41]: Q11-2

	I fully agree	I partially agree	undecided	I rather disagree	I disagree fully
Other researchers could answer (parts of) their own research questions by re-using bioimaging data from my research	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Re-use of bioimaging data from public image repositories might help answering parts of my research questions	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My/our research involves the re-use of publicly available bioimaging data	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I have previously uploaded a significant part of my bioimaging data to a public repository	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I have regularly shared my bioimaging data with other researchers upon personal request before	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
In the future, I will share my bioimaging data related to a journal publication in a public repository	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
In the future, I will share my bioimaging data related to a journal publication upon personal request	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Publishing my bioimaging data independent of a print publication benefits my research output	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Publishing my bioimaging data independent of a print publication benefits my career in science	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Continue

Previous

- Repositories

- Did you actively use the following data repositories with respect to bioimaging data?

Kommentiert [SC42]: Q12-1

	Yes, browsing only	Yes, I retrieved or deposited data	no, but I have heard of it	no, it is irrelevant	no, I do not know this
BioImage Archive (BIA)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Image Data Recourse (IDR)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
BioStudies	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Riken SSBD:database	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Electron Microscopy Public Image Archive (EMPIAR)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Journal of Cell Biology Repository	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
YRC Public Image Repository	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Cell Image Library	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
EBRAINS	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Allen Cell Explorer	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The Human Protein Atlas	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Plant Genomics and Phenomics Research Data Repository	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Figshare	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Dryad	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Harvard Dataverse	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

- Did you use other public repositories for browsing, retrieval or deposition of bioimaging data?

none

- What is your opinion on the following statements about image data repositories?

Kommentiert [SC43]: Q12-2

	I fully agree	I partially agree	undecided	I rather disagree	I disagree fully
There is sufficient guidance towards an appropriate repository for my data	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
There is lack of time or resources to deposit data in a repository	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Technical hurdles are too high to upload to a repository (large data transfer, lack of requested metadata etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

	I fully agree	I partially agree	undecided	I rather disagree	I disagree fully
I do not want to use a public repository because my data ownership / intellectual property might be violated	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Access management in repositories is unsuitable to my needs (restricted usage – type of user, confidentiality, purpose etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My institutional policy does NOT allow to upload data to a public repository	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
For my research project(s), I am unsure if I own the rights to upload the data to a public repository	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other legal aspects (licensing, national laws etc.) are significant hurdles for public repository usage	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

- Image data management tools and platforms

Did you (do you) use the following platforms for your research (today +/- 12 months)?

Kommentiert [SC44]: Q13-1

	Yes, in use	in preparation	no, but I would be interested to	no, not relevant	no, technical reasons	I don't know this
OMERO	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
BisQue	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Cytomine	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
OpenBIS	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
iRODS	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
FAIRDOM-SEEK	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
CATMAID	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

With respect to handling of bioimaging data in your research field: What is your opinion about the following statements?

Kommentiert [SC45]: Q13-2

	I fully agree	I partially agree	I undecided	I rather disagree	I disagree fully
The meaning of the term "metadata" is clear to me	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Systematic and exhaustive metadata annotation is essential for data management in a research project	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Systematic and exhaustive metadata annotation is easy and timesaving	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
An image data management platform is highly valuable for organizing image datasets and files	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
An image data management platform alleviates workload when publishing a research project	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
An image data management platform facilitates reproducibility of my published research project	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The effort to implement an image data management platform is too high compared to its benefit in the long run	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

[Continue](#)

[Previous](#)



- **Besides metadata saved automatically by imaging instruments, it is often required to annotate additional metadata for a study.**

**In a typical bioimaging experiment, do you collect additional metadata and how?**

- ☐ I do NOT collect additional metadata
- ☐ Text editor
- ☐ Excel (or similar)
- ☐ Electronic lab notebook
- ☐ OMERO (incl. annotation plugins)
- ☐ Other

Kommentiert [SC46]: Q14-1

- **In which format or structure do you annotate additional metadata?**

- ☐ individual fields and free-text or tags
- ☐ standardized tags (key-value pairs)
- ☐ standardized fields with individual tags
- ☐ standardized fields with controlled vocabularies / ontologies
- ☐ it varies a lot between metadata items

Kommentiert [SC47]: Q14-1-1

- **What is most urgently needed to improve metadata handling and annotation?**

- ☐ There is no particular need in my opinion
- ☐ Educational material on metadata in general
- ☐ Educational material on metadata in my research field
- ☐ Software to facilitate metadata annotation with graphical user interfaces
- ☐ Software to facilitate automated metadata annotation from my electronic lab notebook
- ☐ More ontologies and controlled vocabularies
- ☐ Less ontologies and controlled vocabularies
- ☐ Guidelines and user-friendliness of ontologies and controlled vocabularies
- ☐ Understand better, why I should care about metadata at all
- ☐ Software tools to make use of annotated metadata for findability
- ☐ Guidelines on which metadata are required for which purpose (repository upload, paper publication, long-term archiving, integration with other data types, etc.)
- ☐ Other

Kommentiert [SC48]: Q14-2

[Continue](#)

[Previous](#)

- Research Data Management

The last few questions concern research data management in general

- What is your opinion on the following statements?

Kommentiert [SC49]: Q15-1

	I fully agree	I partially agree	undecided	I rather disagree	I disagree fully
I am highly knowledgeable about research data management in my research field	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I need to learn much more about research data management in my research field	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I handle my research data according to community standards for data handling	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I handle my research data in a very own, individual way	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

- Becoming knowledgeable about research data management...

Kommentiert [SC50]: Q15-2

	I fully agree	I partially agree	undecided	I rather disagree	I disagree fully
is necessary only because funding agencies demand it	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
increases the quality of my research output	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
enhances my career chances in science	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
is an outcome of my education during undergraduate studies	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
is very hard, because demands are deviating and confusing	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
is very time-consuming	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

[Continue](#)

[Previous](#)

• **The term "FAIR principles"...**

- ☐ is unknown to me
- ☐ sounds familiar, but I cannot explain the meaning
- ☐ is familiar, I can explain it to some extent
- ☐ is clear to me, I can explain it in detail
- ☒ is clear to me and I publish (most of) my data according to them

Kommentiert [SC51]: Q16-1

• **My institution / my company...**

- ☐ has a research data management policy, I have read it
- ☐ has a research data management policy, but I did not read it
- ☐ does not have a research data management policy
- ☐ I am not sure if it has a research data management policy

Kommentiert [SC52]: Q16-2

**What is your opinion on the following statements about electronic lab notebooks (ELNs):**

Kommentiert [SC53]: Q16-3

	I fully agree	I partially agree	undecided	I rather disagree	I disagree fully
I use an ELN for most of my research project(s)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
ELNs are too expensive to use	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I know which offers for ELN solutions exist	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Available ELNs meet all requirements to help in my research	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
ELNs help to make data more easily findable and accessible for me (or my group)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Changing from written lab notebooks to ELNs facilitates good scientific practice	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The benefit of using an ELN in my research outweighs the effort to implement it in the first place	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I trust that an ELN is a safe solution for documentation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I use ELNs to facilitate data sharing and cooperation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

• **What is your opinion on these statements about Data Management Plans (DMPs):**

Kommentiert [SC54]: Q16-4

	I fully agree	I partially agree	undecided	I rather disagree	I disagree fully
I know what a DMP is and what it is used for	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
DMPs are an important part of my research project(s)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



- Other consortia and consortial initiatives  
NFDI consortia aim to benefit a community of data users and providers in a scientific discipline or method.
- Do you consider yourself a member of one or more user communities represented by NFDI consortia or consortial initiatives?**  
**Please answer spontaneously & check all that apply.**  
**(additional optional questions might be offered, contributed by collaborating consortia)**  
☐ 2linkNFDI ☐ BERD@NFDI ☐ DataPLANT ☐ DAPHNE4NFDI ☐ DeBioData ☐ FAIRmat ☐ GHGA  
☐ InnoMatSafety ☐ KonsortSWD ☐ MaRDI ☐ METHODS ☐ NFDI4Agri ☐ NFDI4BioDiversity ☐  
NFDI4BIOIMAGE ☐ NFDI4Cat ☐ NFDI4Chem ☐ NFDI4Culture ☐ NFDI4DataScience ☐ NFDI4Earth  
☐ NFDI4Health ☐ NFDI4Immuno ☐ NFDI4Ing ☐ NFDI4Life Umbrella ☐ NFDI-MatWerk ☐  
NFDI4Memory ☐ NFDI4Microbiota ☐ NFDI4MobilTech ☐ NFDI-Neuro ☐ NFDI4Objects ☐  
NFDI4Patho ☐ NFDI4Phys ☐ NFDI4RSE ☐ NFDI4SD ☐ NFDI4Solar ☐ NFDIxCS ☐ PUNCH4NFDI ☐  
Text+ ☐ TheoReS ☐ no, none of them

- 
- 
- NFDI4Immuno contribution:**  
**Does GDPR (General Data Protection Regulation) affect your data sharing workflows?**  
☐ No, non-human material  
☐ No, anonymized human samples  
☐ Yes, but data can be sufficiently anonymized  
☐ Yes, data is (pseudonymized) personal data and therefore subject to GDPR
- GDPR details:**  
☐ Data cannot be shared as there are no provisions for sharing in the Informed Consent Form (ICF)  
☐ ICF provides for data sharing and data requests are usually granted  
☐ ICF provides for data sharing, but data requests are usually denied
- What are the many impediments that keep you from sharing personal data?

Maximum

of 500 characters allowed. Currently Entered: 0 characters.

NFDI4Immuno contribution: Do you use one of the following techniques?	I know, but do		
	Yes, I use this method	not use this method	No, I do not know this method
Imaging Flow Cytometry (e.g., Luminex Amnis ImageStream)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Imaging Mass Cytometry (e.g., Fluidigm Hyperion)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**Kommentiert [SC56]:** These questions were only shown, if participants checked "NFDI4Immuno" in the previous list

- **NFDI4Immuno contribution:** Below you will find various metadata fields. Do you regularly provide annotations for these fields and if yes, how formalized is the information that you would usually provide? Note that the level of formalization is considered to increase from left to right. Please pick the answer that is representative of a typical data set

	No annotation	Free text/user- defined tags	Standardized tags	Standardized fields with free-text values	Standardized fields with controlled vocabularies/ontologies
Study - Study design	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Subject - species	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Subject - subspecies/population/strain	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Subject - age/developmental stage	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Subject - sex	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Subject - diagnosis	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Subject - intervention	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Sample - tissue	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Sample - anatomic location	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Sample - cell type	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

.

Would you like to suggest an own idea for the further development of the collaboration between NFDI4BIOIMAGE and NFDI4Immuno?

Maximum

of **500 characters** allowed. *Currently Entered: 0 characters.*

- DataPLANT contribution:**  
**In addition to imaging, what types of technologies are used in your research group?**  
☐ Single cell genomics ☐ Genomics ☐ Transcriptomics ☐ Translatomics ☐ Proteomics ☐  
Epigenomics ☐ Metabolomics ☐ Phenomics ☐ Other
- Would you like to suggest an own idea for the further development of the collaboration between NFDI4BIOIMAGE and DataPLANT?

**Kommentiert [SC57]:** These questions were only shown, if partipants checked "DataPLANT" in the previous list

Maximum

of **500 characters** allowed. *Currently Entered: 0 characters.*

- NFDI-Neuro contribution:**  
**Which model system(s) are you primarily studying?**  
☐ Human ☐ Rodent ☐ Drosophila / Other insects ☐ Non-human primates ☐ Cultures ☐ Zebrafish ☐  
☐ Other
- NFDI-Neuro contribution:  
Which non-bioimaging modalities are you recording in your experiments (e.g., electrophysiological data, genomic data, etc.)? Please enter a comma-separated list.

**Kommentiert [SC58]:** These questions were only shown, if partipants checked "NFDI-Neuro" in the previous list

Maximum

of **500 characters** allowed. *Currently Entered: 0 characters.*

- 
- 
- 
-

- Would you like to suggest an own idea for the further development of the collaboration between NFDI4BIOIMAGE and NFDI-Neuro?

[illegible]

of **500 characters** allowed. *Currently Entered: 0 characters.*

Maximum

Continue

[Previous](#)

Page 17 of 18

- Thank you very much for taking part in our survey!  
Your answers will be of great value to shape the NFDI4BIOIMAGE work programme according to the community needs.
- Do you wish to leave a personal comment?  
(Please do not include any information allowing personal identification of yourself or third persons!)

[illegible]

- **Final Remark:**  
After clicking "submit" you will be redirected to the website of NFDI4BIOIMAGE.  
  
You will have the chance to subscribe to a mailing list that is not linked to the answers in this survey.  
  
Thank you and best wishes!

Übermitteln

[Previous](#)

Page 18 of 18