

# The PUNCH4NFDI Consortium

## Newsletter Number 1

November 2021

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## 0. Motivation

The PUNCH4NFDI consortium consists of scientists and IT specialists at more than 40 institutions, more or less directly involved on a daily basis in the PUNCH4NFDI projects and work packages. In order to facilitate at least a minimum of knowledge exchange, we are organising regular general meetings (about every two months) – and we will send a newsletter on roughly the same timescales. For this, under normal running conditions (but not for this first issue), we will ask for your input about a week before the publication date. In case you have news for the PUNCH4NFDI community or relevant publications, or if you are aware of an interesting event, please don't hesitate to let us know at [info@punch4nfdi.de](mailto:info@punch4nfdi.de).

## 1. Highlights

No particular highlights to report this time – we are eagerly waiting for your input for the next newsletter!

## 2. NFDI and related topics

The NFDI is organised as an association (“Verein”) under German law, with the consortia being independent sections. The governance of the NFDI is depicted in Figure 1. Of the various boards, we are particularly interested in the “Assembly of Consortia”, in which PUNCH4NFDI has a seat (currently taking by Thomas Schörner with Susanne Pfalzner as deputy).

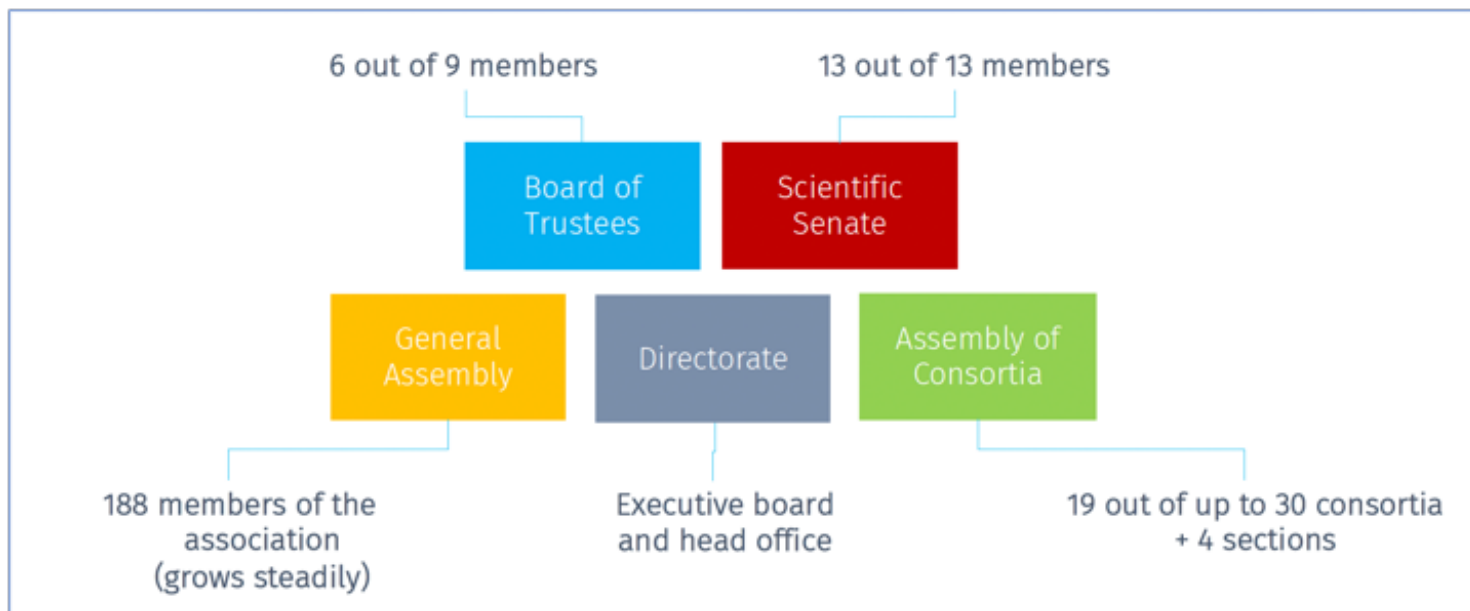


Figure 1: The NFDI e.V. governance

In a series of strategy workshops, the NFDI and the consortia of the first funding round (remember that PUNCH4NFDI has only entered the game in the second round, one year later) have identified a number of 12 cross-sectional topics (see figure 2), out of which so far four are pursued in the framework of so-called “Sections”: Metadata, Common infrastructures, Training & education, Ethical & legal aspects. PUNCH4NFDI is so far represented with consortium members in the first three of these sections; if you are interested in also shaping the relevant discussions, or in representing PUNCH4NFDI in the section on Ethical & legal aspects, don’t hesitate to contact us at [info@punch4nfdi.de](mailto:info@punch4nfdi.de). In the future, the NFDI will continue the process of defining new sections, then including the consortia of the second round.



Figure 2: NFDI sections

Figure 3 shows an overview of the consortia in the NFDI so far. Of the so far 19 consortia, the physics-related DAPHNE4NFDI and FAIRMAT are probably closest to us (although we already had good exchanges with NFDI4Culture and MaRDI and are looking forward to collaboration with e.g. NFDI4Health), and we have started exchanges on several topics with them (e.g. education and training). Parts of this exchange also involve the German Physical Society DPG.

Consortia (1. round)	Consortia (2. round)	In numbers:
<ul style="list-style-type: none"> <li>• DataPlant</li> <li>• GHGA</li> <li>• KonsortSWD</li> <li>• NFDI4BioDiversity</li> <li>• NFDI4Cat</li> <li>• NFDI4Chem</li> <li>• NFDI4Culture</li> <li>• NFDI4Health</li> <li>• NFDI4Ing</li> </ul>	<ul style="list-style-type: none"> <li>• BERD@NFDI</li> <li>• DAPHNE4NFDI</li> <li>• FAIRmat</li> <li>• MaRDI</li> <li>• NFDI4DataScience</li> <li>• NFDI4Earth</li> <li>• NFDI4Microbiota</li> <li>• NFDI-MatWerk</li> <li>• PUNCH4NFDI</li> <li>• Text+</li> </ul>	<ul style="list-style-type: none"> <li>• Round 2 (out of 3)</li> <li>• 19 consortia (out of up to 30)</li> <li>• ~200+ (co-)applicants</li> <li>• ~250+ (co-)spokespersons</li> <li>• ~400+ further participants</li> </ul> <p>Target: max. 30 consortia after 3. round</p>

Figure 3: NFDI consortia so far (rounds 1 and 2)

The NFDI itself has numerous meetings – you are invited to subscribe to the NFDI general mailing list [nfdi-all-join@lists.nfdi.de](mailto:nfdi-all-join@lists.nfdi.de). In order to subscribe, please send an email with the subject line “subscribe” to [nfdi-all-join@lists.nfdi.de](mailto:nfdi-all-join@lists.nfdi.de). Furthermore, the NFDI has installed a RocketChat messenger service – if you wish to be enrolled, contact [support@punch4nfdi.de](mailto:support@punch4nfdi.de). The NFDI organises a TOOLTalk and an NFDI coffee – feel free to browse the NFDI pages at [www.nfdi.de](http://www.nfdi.de) for more information.

### 3. Formal, legal and financial topics

With the cooperation agreement signed by all 20 co-applicants (and thus a mechanism for the distribution of funds in place), and the formal start of the second NFDI round on 1 October 2021, PUNCH4NFDI is set to start working. One important issue – being discussed between all consortia and currently being taken to the political stage is the overall funding situation. Figure 4 shows a sketch of the situation for PUNCH4NFDI. The yellow curve reflects the funding profile as proposed in our September 2020 proposal. The green one is the planning we came up with when we learned that a 30% funding cut would be applied by the DFG. And the red one is the actual grant by the DFG. Considering also the slow start of the hiring process, it turns out that we have a substantial problem of spending the allocated funds in the first 2 or maybe even 3 years – and that there is no guarantee that we will be allowed to transfer the funds into the next year. All partner institutions are therefore encouraged to start spending (and thus hiring personnel) as soon as possible (according to the planning of course).

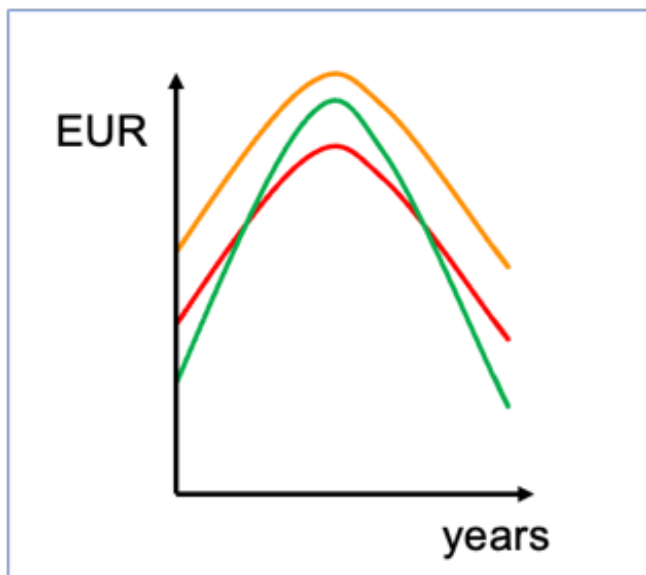


Figure 4: Funding profile issues - see text

**Important note: There is a considerable risk that we are going to lose funds if we are not allowed to transfer funds from one year to another. This risk has to be shared by all partners, according to their share in PUNCH4NFDI. So far we have NOT been allowed to mitigate the risk by suggesting a new funding profile over time.**

#### 4. Status of the consortium

##### Work programme

The funding reduction of roughly 30% necessitated a re-thinking of our ambitious work programme. We have almost finalised a document sketching this reduced work programme with short explanatory texts for each work package and a list of deliverables. This document will be made available as soon as it is finalised by the TA leads.

The work programme document, however, is a very technical piece of paper, and at least for the purpose of the midterm report due in September 2024, we need to define a not too large set of high-level milestones that are at the same time ambitious, realistic, and concrete (= easy to communicate). We are in the process of defining these milestones and hope to be able to tell a convincing story with them.

##### Reporting

The reporting lines of the consortium are rather simple: i) financial reporting towards the DFG (handled between the financial contacts in all institutions and DESY); ii) reporting towards the NFDI (still undefined – a task force on “Monitoring” has been installed); iii) internal scientific controlling along the work programme document. For this latter purpose, we are setting up a simple and flat reporting mechanism that needs to be served, probably every three months, by TA leads and institutions.

#### 5. Communication and collaborative tools

##### Web page and intranet, Zenodo

You are probably by now aware of our public web page [www.punch4nfdi.de](http://www.punch4nfdi.de) – and you should know that any PUNCH-related publication or job advertisement should also be placed on this page. Please inform [info@punch4nfdi.de](mailto:info@punch4nfdi.de) in case of suggestions or input. From the “Internal” button on the homepage, you get to our internal web page <https://intra.punch4nfdi.de> which serves for our internal documentation and discussion (see figure 5). Access to this page is restricted to PUNCH members, and you need to be added and registered for this access. Please contact [support@punch4nfdi.de](mailto:support@punch4nfdi.de) if

you require access (see also the AAI subsection below). The intranet page in particular contains many bits and pieces of information that might simplify your life in PUNCH – dates, meeting coordinates, work programme descriptions etc.

PUNCH4NFDI Intranet documentation edit page on gitlab

# Particles, Universe, NuClei and Hadrons for the NFDI

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search... (shift+f to focus)

## TA5-WP2 overview

TA5-WP2: Dynamic filtering

A large focus of TA 5 is on the actual implementation of efficient real-time filtering. Making use of large data streams accessible to PUNCH (e.g. LHC, Belle II, MeerKAT), TA5-WP2 "Dynamic filtering" will study a number of analogous challenges in the real-time selection and processing of data extracted from huge data streams. The focus will be on how to discard irrelevant information with both minimal time budget and ability to describe the decision process in metadata that become part of the data itself. Generally, fast real-time clustering and pattern recognition algorithms are also needed to identify and separate background from physically interesting events.

Institutes: DESY HH, FIAS, MPIfR, TU DD, U Heidelberg, U Mainz

Deliverables (reduced work programme):

- D-TA5-WP2-1 (31 May 2022): Curation & metadata schemes for dynamic filtering.
- D-TA5-WP2-2 (30 Sep 2022): Strategy concept for identifying highly complex (multi-parametric) signals in huge data streams.
- D-TA5-WP2-3 (31 Dec 2023): Test environment for identifying highly complex (multi-parametric) signals in huge data streams using MeerKAT data.
- D-TA5-WP2-4 (30 Sep 2024): Generic tool to convert trained neural networks into efficient HLS/VHDL FPGA firmware optimised for a real-time, low-latency environment.
- D-TA5-WP2-5 (01 Mar 2026): Algorithms for massively parallel real-time sorting, clustering and pattern recognition on specialised hardware.
- D-TA5-WP2-6 (01 Mar 2026): Algorithms and Machine Learning methods for filtering and selecting relevant transient/anomalous signals.
- D-TA5-WP2-7 (30 Sep 2026): Pipeline for anomalous signal detection with low false-alarm probability for multi-messenger follow-up.

ESience@AIP Leibniz Institute for Astrophysics, An der Sternwarte 16, 14482 Potsdam, Germany, Tel: +49-331-7499-0

Figure 5: the PUNCH4NFDI intranet

## Who is who in PUNCH4NFDI

A lot of information on who is who in PUNCH can be found on the web page – but we are also thinking about a written document summarising the information. Stay tuned.

## Mailing lists

A rather comprehensive set of mailing lists has been set up for the purposes of the consortium. The names of the mailing lists are typically [XYZ@punch4nfdi.de](mailto:XYZ@punch4nfdi.de) – and if you want to be added to one of them, you can try self-subscription with a mail to [sympa@desy.de](mailto:sympa@desy.de) containing the usual “subscribe punch4nfdi-XYZ” subject. In case of questions or if you desire your own mailing list for your particular purpose – contact [support@punch4nfdi.de](mailto:support@punch4nfdi.de). For some of the TAs, a separate mailing list has been installed for each WP – feel free to contact the TA leads in question for more information.

## PUNCHLunch seminars

We try to maintain the PUNCHLunch seminar series on a by-weekly basis (see <https://indico.desy.de/category/743/>). If you have suggestions for the seminar series – let us know at [info@punch4nfdi.de](mailto:info@punch4nfdi.de).

## Status of PUNCH4NFDI AAI efforts

In the first few months before the project started, the PUNCH-AAI has been established. We used the offer of the Helmholtz-AAI to create PUNCH-AAI as part of their overall services. This immediately guaranteed that PUNCH-AAI is federated with DFN-AAI and other and even European-level authentication providers. As a consequence, the PUNCH-AAI allows authentication by many universities and research institutes participating in DFN-AAI, and for institutes that are currently not participating in one of the federated AAIs, an authentication with an ORCID ID, GitHub or Google is possible (the last two not favoured). Since we have this mix of authentication providers, the internal management of the PUNCH-AAI requires many additional thoughts and policy development for the services that PUNCH4NFDI plans to develop.

Based on the authentication via the PUNCH-AAI as a single sign on service the following basic internal tools for organising the work of the collaboration are accessible (see fig. 7):

- `intra.punch4nfdi.de`, the intranet of the collaboration, which is built on
- a gitlab repository connected to a web server.
- `gitlab.aip.de` is the facility for all code development for services of PUNCH4NFDI
- `mattermost.aip.de` is a Slack like service, also for use in the collaboration
- access to `syncandshare.desy.de`, a cloud service running on ownCloud

In order to get access to the AAI, please refer to

[https://www.punch4nfdi.de/services/collaborative\\_tools/](https://www.punch4nfdi.de/services/collaborative_tools/); in case of problems please contact [support@punch4nfdi.de](mailto:support@punch4nfdi.de).

The further work has two different directions. One is extending the capabilities of services to process also authorisation information (aka resource access), which is a technical process, e.g. using the keycloak service. The other is the definition of policies for the resources / services, and their implementation for the PUNCH-AAI authenticated users.

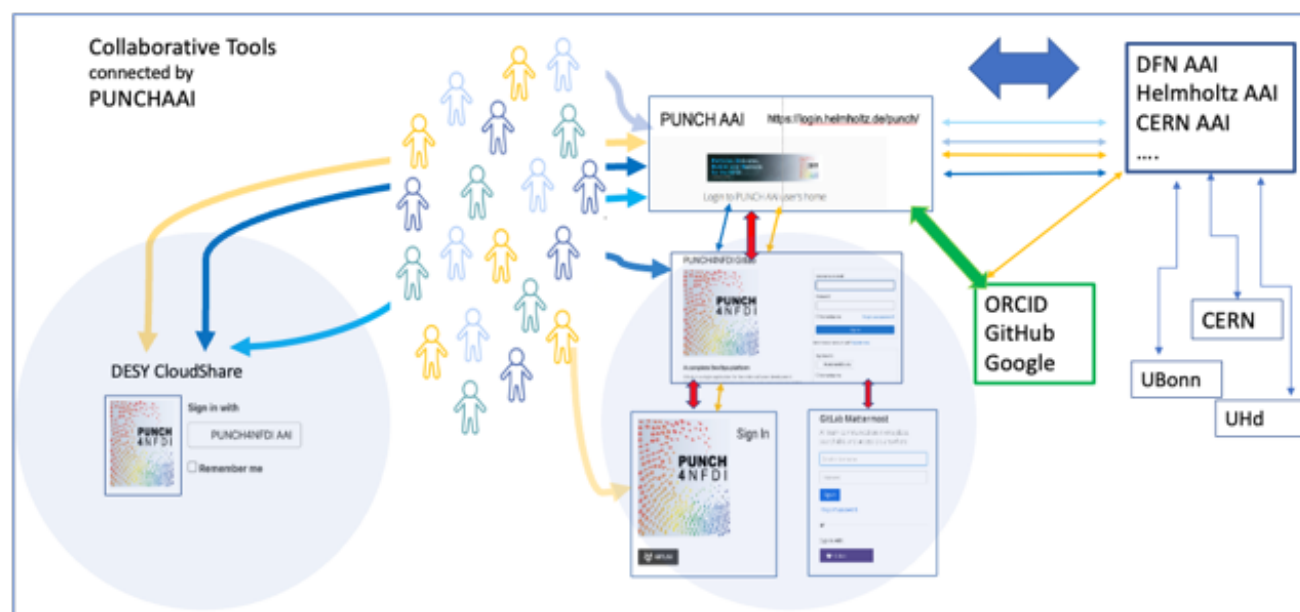


Figure 6: PUNCH-AAI and related services and infrastructures

## INDICO and calendars

Information on how to extract the PUNCH4NFDI calendar and on the INDICO pages of PUNCH4NFDI can be found in the intranet.

## 6. Acknowledgements and templates

- A Powerpoint template for PUNCH4NFDI-related presentations can be found in the intranet (Consortium → Materials).
- Similarly, Word and LaTeX templates for reports and written documents can be found there.
- In presentations related to or based (partly) on PUNCH4NFDI work and funding, please have the following acknowledgement together with the PUNCH4NFDI and DFG logos (can be found on the intranet): *“This work was [in part] supported by DFG fund „NFDI 39/1“ for the PUNCH4NFDI consortium.”*
- Similarly, in publications related to or based (partly) on PUNCH4NFDI work and funding, please have the following acknowledgement: *“This work [The work of NN] was [partly] performed in the framework of the PUNCH4NFDI consortium supported by DFG fund “NFDI 39/1”, Germany.”*



Figure 7: The PUNCH4NFDI and DFG logos to be used in presentations and publications

## 7. Events and upcoming excitements

- Next PUNCH4NFDI general meeting: 18 January 2022, <https://indico.desy.de/event/32343/>
- Next PUNCHLunch seminar – 16 December, 12:30 hrs: Oonagh Mannix (Helmholtz): the Helmholtz Metadata Collaboration HMC (separate invitation coming soon)

## 8. Recent talks and publications

To be found on the web page and in ZENODO (<https://zenodo.org> – just search for “PUNCH4NFDI” or – if you are interested in the broader scope – “NFDI”).

- J. Erdmann et al., Reformulation of a likelihood approach to fake-lepton estimation in the framework of Bayesian inference, NIM A 1021 (2021) 165939 ([doi](#)).
- T. Schörner, [The PUNCH4NFDI Consortium](#), presentation at the annual meeting of the DPG section “Condensed Matter”, September 2021.
- T. Schörner, [The PUNCH4NFDI Consortium](#), presentation at the KET annual meeting, November 2021.