

Interactive Community Session.

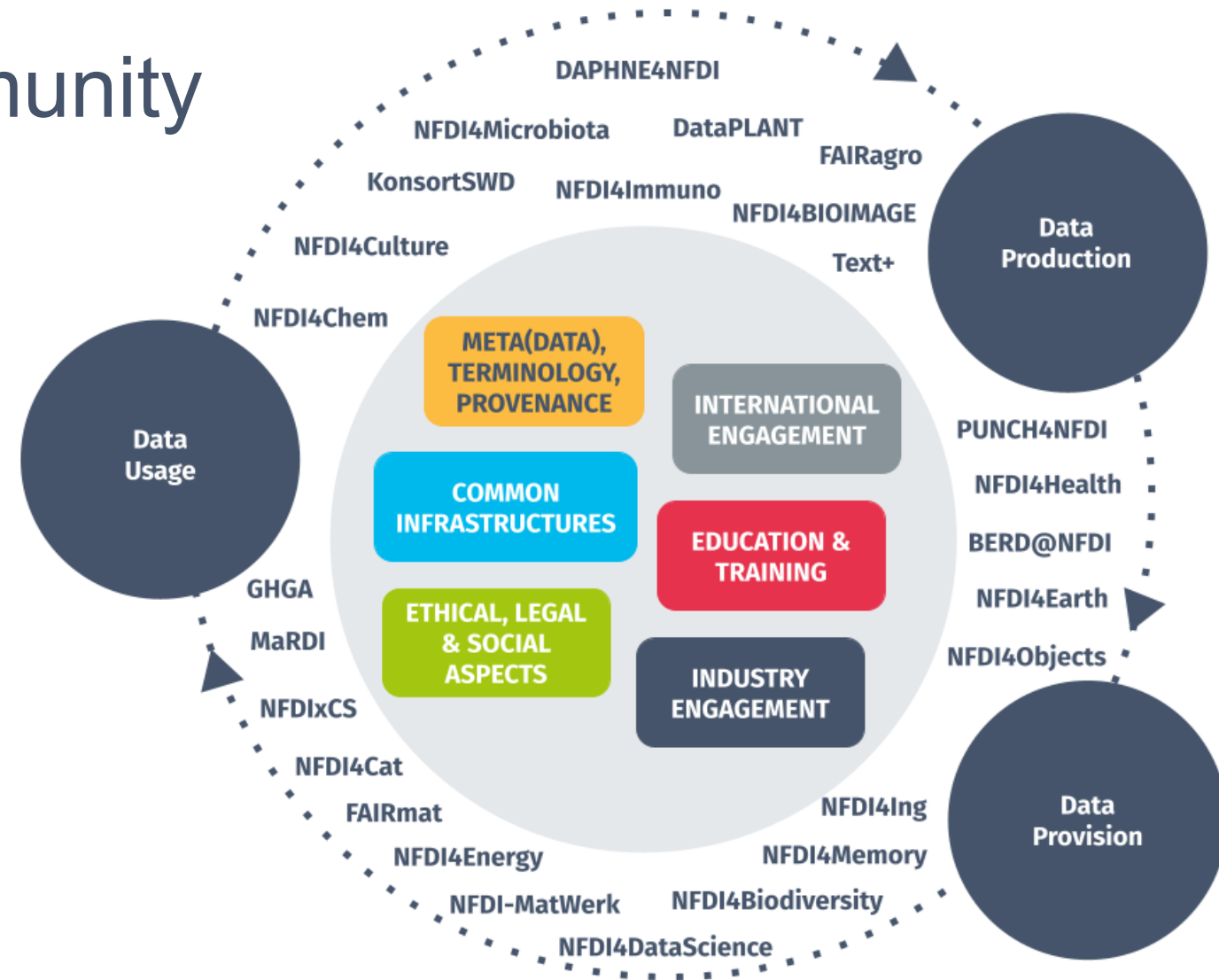
Accounting4NFDI

Federated resource accounting,
allocation tracking, and alerts

...Accounting4NFDI

on behalf of the project team:

Marcel Nellesen, See-Ling Wong, Matthias Bonn, Gernot Deinzer,
Peter Gietz, Dirk von Suchodoletz, Alexander Wagner



Do you need to report KPIs?



This work is licensed under a

Do you manage resources?



This work is licensed under a

What is a resource?



This work is licensed under a

What is a resource?

Overview

● A definition

- A resource is a supply or asset that can be drawn on by a person or organization to function effectively. In an academic context, it refers to materials, tools, or knowledge used to achieve goals such as learning or research.

● A few examples

- Storage space
- Computation time
- Publications
- Licenses
- ...

What is a resource?

Domain specific resources

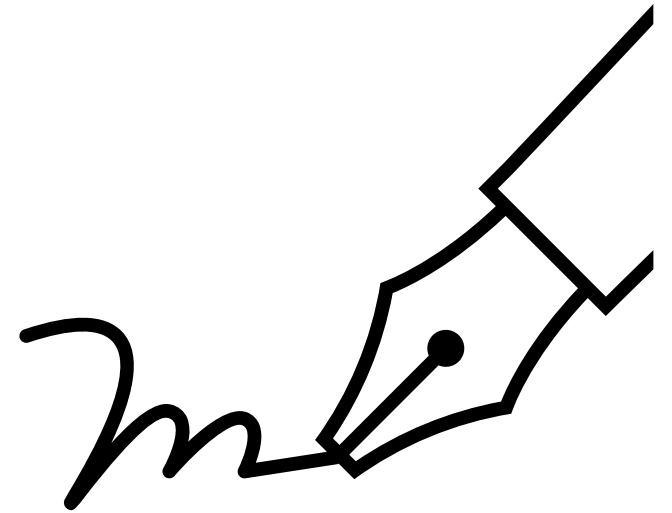
- **There are many resources that are not visible from the outside**
 - **Highly advanced telescopes**
 - **MRT**
 - **Ground Radar systems**
 - **...**

What is a resource?

A small experiment

● Experiment:

- Try to think about everything that is necessary to perform research in your group/institute/consortia



What is a resource?

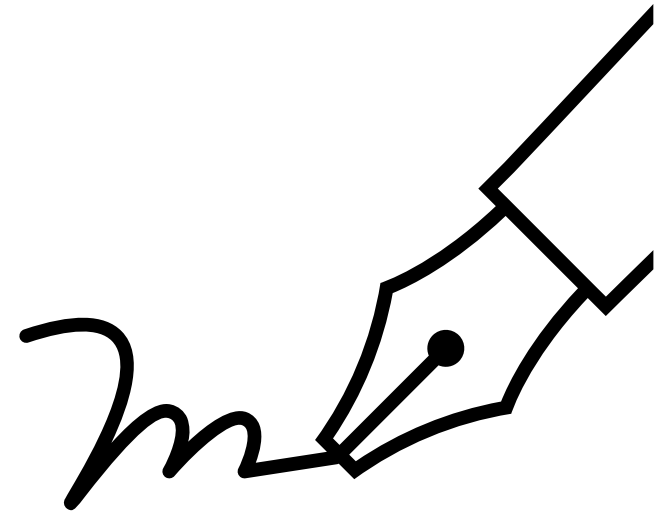
A small experiment

● Experiment:

- Try to think about everything that is necessary to perform research in your group/institute/consortia

● What came to mind?

- High end lab equipment?
- That one person who knows everything?
- Coffee machine?
- ...



Why do accounting?
And what does that mean
anyway?



This work is licensed under a

What is accounting

Short summary

Accounting provides transparent, standardized tracking of resource usage and costs across services to enable fair allocation, compliance reporting, cross-consortia interoperability and long-term sustainability.

What is accounting

Short experiment

- An employee of your group suggest to get a better coffee machine
- What do you do?
- How do you make your decision?



<https://www.pexels.com/de-de/foto/koffein-kaffee-tasse-espresso-12821523/>

What is accounting

Short experiment

- An employee of your group suggest to get a better coffee machine
- What do you do?
- How do you make your decision?

Data makes the difference!



<https://www.pexels.com/de-de/foto/koffein-kaffee-tasse-espresso-12821523/>

A researcher's perspective

Motivation

- **Easier way to find available resources**
- **Established and transparent processes to get resources**
- **Fair process for the distribution of resources**
- **Better overview on utilized and still available resources**
- **Higher chance that required resources are available long-term**

Sustainability depends on Accountability



A consortia's perspective

Motivation

- Understand what resources are utilized by services and researchers
- Get usage data of services and infrastructure
- Make informed decisions on future developments
- Prioritize key infrastructure and projects
- Easy way to collect key outcomes

Sustainability depends on Accountability



The directorates perspective

Motivation

- **Understand the overall consumed resources on a consortia or research field level**
- **Make informed decisions on future acquisitions**
- **Distribute available resources fair on actual demands**
- **Easy ways to show the results of the services and consortia**

Sustainability depends on Accountability



<https://www.pexels.com/de-de/foto/marketing-ausfahrt-schreibtisch-notizbuch-7414218/>

28.07.2026

Accounting and IAM/AAI

A short excursion

- **To assign resources, track their usage it is necessary to know who is using them**
- **A robust federated Identity and Access Management is absolutely necessary**
- **It is also sometime described as**
 - **AAA framework (Authentication, Authorization, and Accounting)**
- **Therefore, Accounting is part of the Working Group IAM (Identity and Access Management)**

Accountability depends on IAM

Requirement analysis



This work is licensed under a

Requirement analysis

A short summary

- **Developed a questionnaire that was distributed to all consortia and other key players**
- **Goal understand which resources are managed, what tools are utilized, etc. ...**
- **The results showed that often there is no dedicated accounting infrastructure or similar processes**

Accountability is not well established yet

Requirement analysis

Consequences

- **Since the topic is not very familiar, we will conduct in depth interviews**
- **We can introduce the topic and answer questions**
- **Chance for us to get to know the consortia and the services**

We want to understand you and your services better!

State of the art



This work is licensed under a

State of the art

A short summary

● Investigated solutions

- Jards
- OpenCost
- ColdFront
- EOSC Accounting
- And many more

● Goal understand which resources are managed, what tools are utilized, user base, etc. ...

State of the art

Consequences

- Existing approaches are sometimes ...
 - Highly specialized for specific resource types
 - Well established in areas outside of NFDI
 - ...
- ... or they are
 - Just a proof of concept
 - No longer maintained
 - Not integrated with federated community AAls
 - ...

**There is no out of the box solution that fits all needs,
but there is potential.**

State of the art

Consequences

- **There is not one solution that fits every use case**
- **Some well established solution for specific resource types**
- **Interoperability is key**
- **Performing a gap analysis**

**There is no out of the box solution that fits all needs,
data from different solutions needs to be combined to have a good overview**

A central dash board

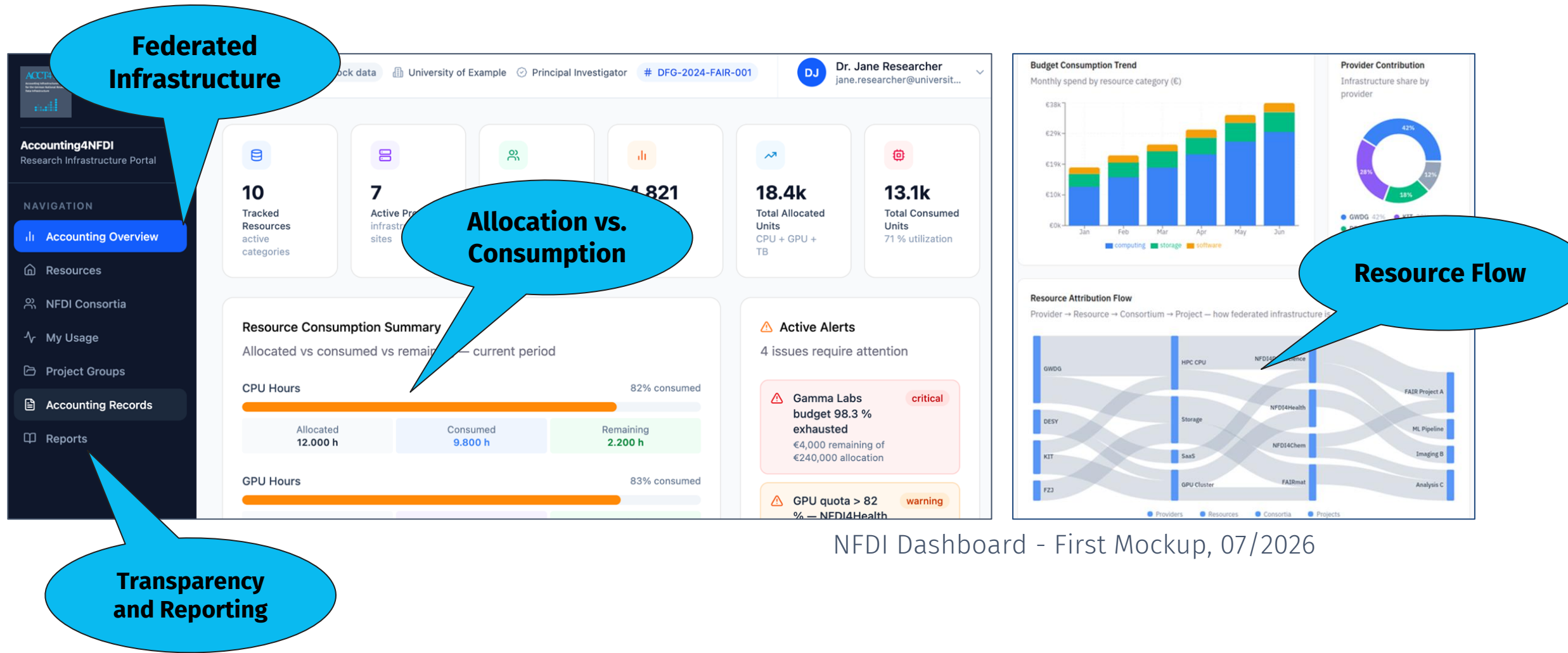
A demo



This work is licensed under a

Consortia's perspective

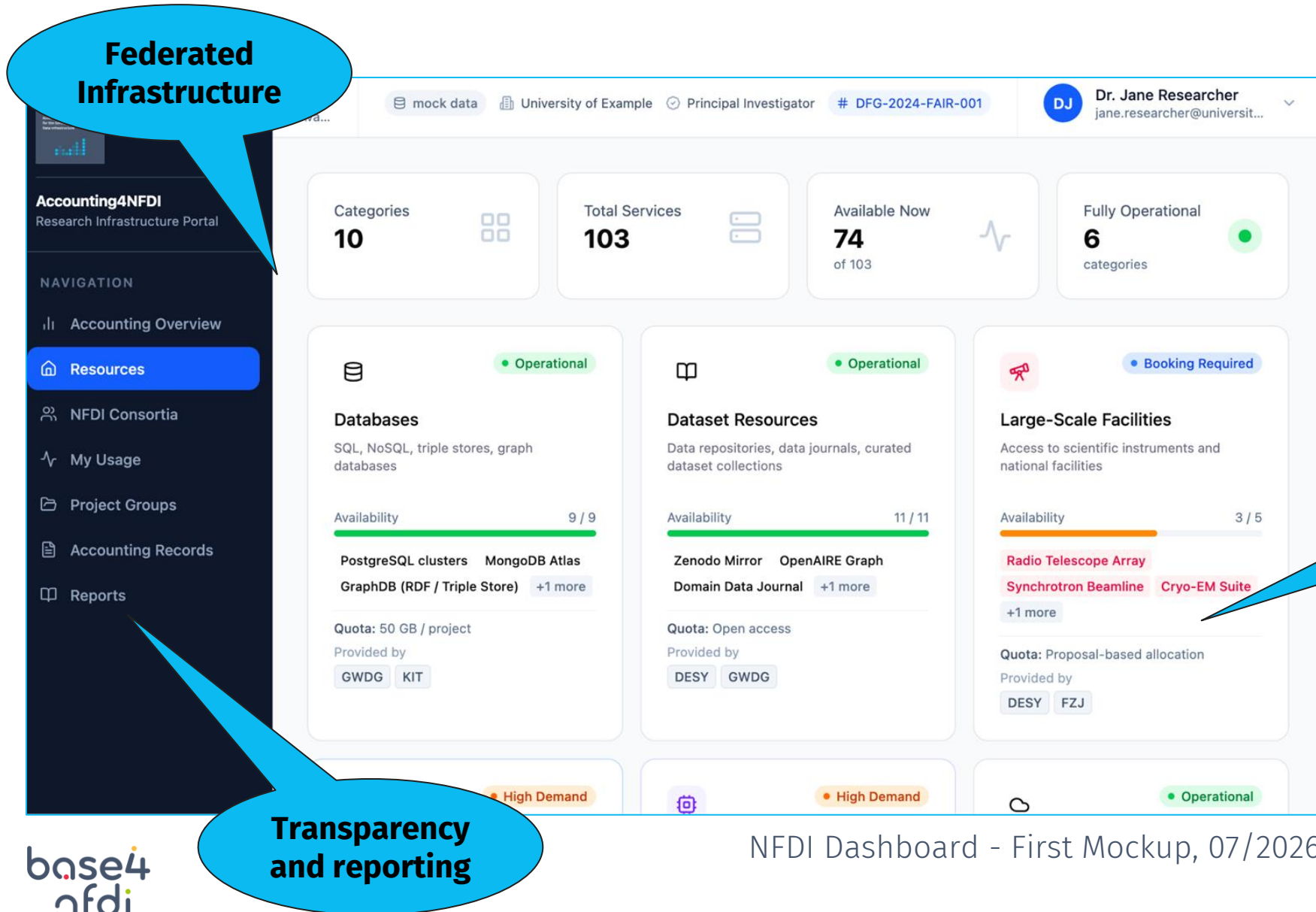
A consortia's perspective



NFDI Dashboard - First Mockup, 07/2026

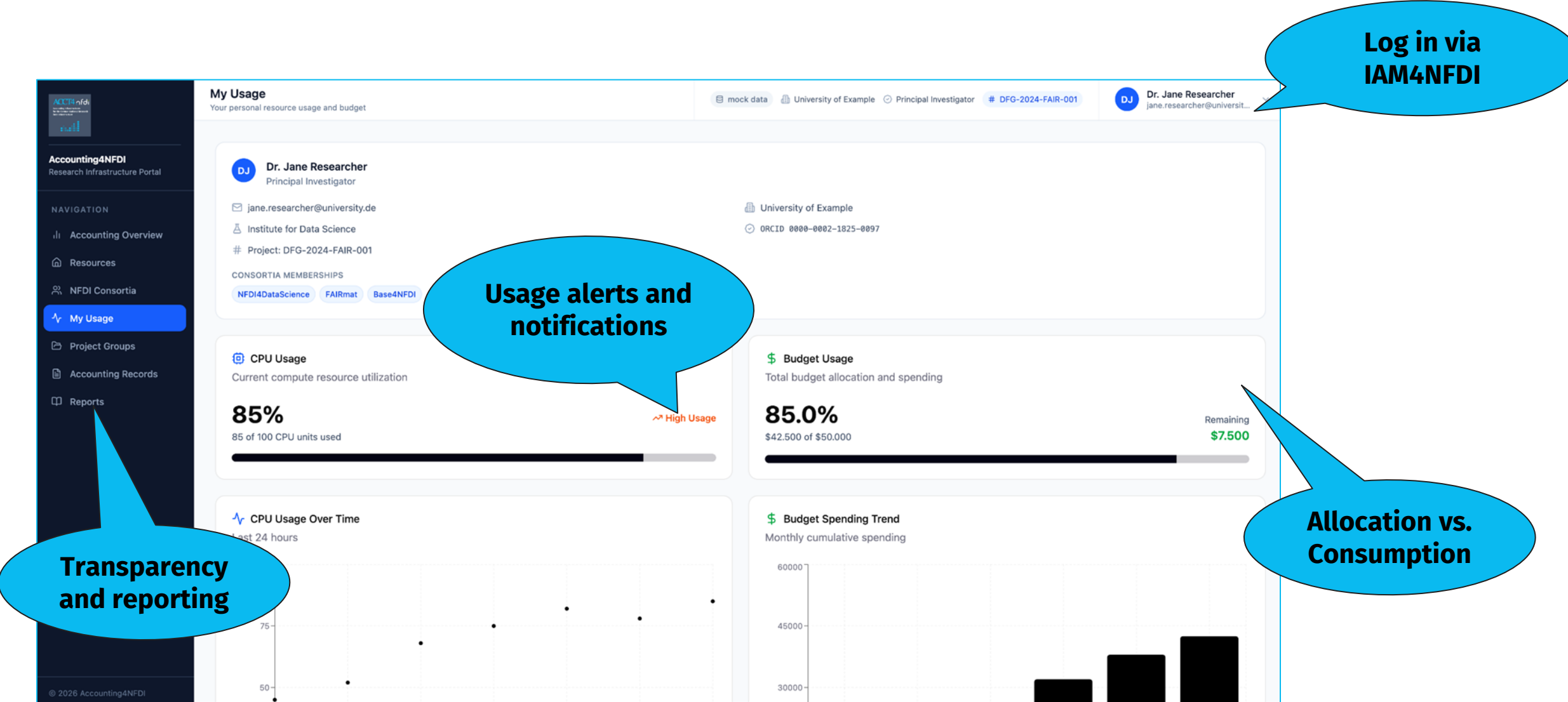
PI's perspective

A PI's perspective



Researcher's perspective

A Researcher's perspective



The roadmap



This work is licensed under a

Integration phase

Outlook: NFDI Dashboard

A unified hub for transparency, accountability and sustainability

For Researchers:

- One-stop overview of available resources across NFDI
→ *Empowers discovery and access.*

For Consortia:

- Visibility of allocated vs. utilized resources
→ *Enables fair distribution and proactive scaling.*

For Sustainability:

- Use accounting data to ensure long-term viability
→ *Prevents resource exhaustion and supports informed decision-making.*



Integration phase

Outlook: Extending the Solutions

Key Insights from Solution Analysis:

- EOSC Accounting: General, metric driven framework
- NFDI Focus: Requires a resource-based accounting model
- NFDI Abstraction Layer: Bridge gap between raw data and usable insights
- Prefer Harvesting Over Pushing: Provide once, serve many
- IAM4NFDI Integration: Link identities, projects, consortia, entitlements, quotas and resource usage

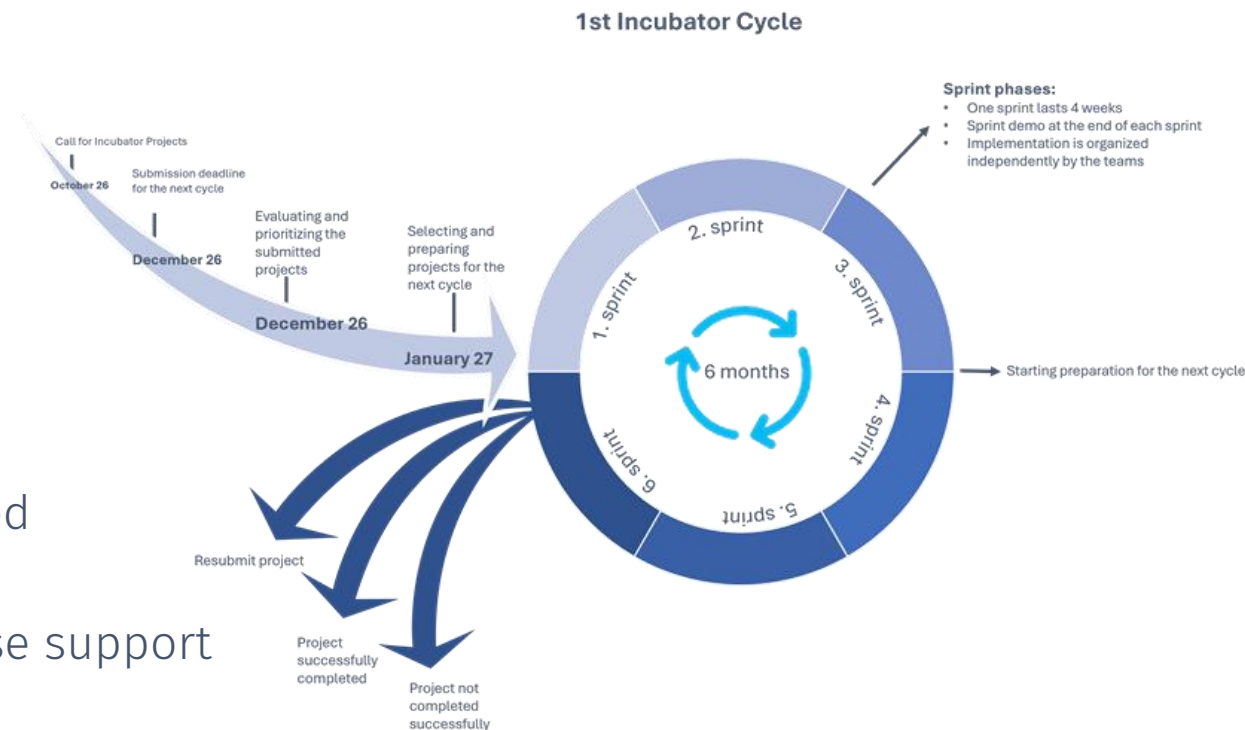
Accounting4NFDI should not replace existing systems. It should harvest and contextualize existing accounting, monitoring, identity and resource metadata to provide reusable reporting and dashboard services.

Integration phase

Outlook: Incubator Process

Vision: Streamlined interaction with consortia to maximize tool adoption

- Incubator process was successful in various Base Services (e.g. IAM)
- 4 Incubator phases (each 6 months)
 - Results and lessons learned will be documented
 - complex use cases are split into small, manageable tasks, allowing continuous stepwise support
- Incubator dashboard
- Overview of planned, ongoing and complete incubator projects



Integration phase

Key Points

Interoperability

- Integrate with existing NFDI community solutions and EOSC initiatives

Sustainability and Operations

- Develop a sustainable service and operational model
- Establish governance, continuity and long-term service provisioning

Community Validation

- Validate concepts and requirements through incubators
- Refine and prioritize requirements based on real-world use cases



Now there is time for all your questions and an open discussion!

Get in Touch: <https://base4nfdi.de/projects/accounting4nfdi>

 accounting4nfdi@lists.nfdi.de

 Book a meeting with us

 Share your requirements and use cases



SCAN ME

