Brookhaven National Laboratory

U.S. DEPARTMENT OF ENERGY

# Update on Scientific Collaborative Tools

Collaborators: Dmitry Arkhipkin, Uma Ganapathy, Vincent Garonne, Robert Hancock, Eric Lancon (PI/FY24), Jerome Lauret , Ofer Rind. (co-PI/FY25), Peter Steinberg (co-PI/FY25)

October 31, 2024

@BrookhavenLab

# Scientific Collaborative Tools Help to Answer These Key Questions

- *How many institutes are part of the collaboration?*
- *Who is the current spokesperson?*
- *Who led the XX Physics group in 2027?*
- *What roles did Institute A played in the 2031 experiment operations?*
- *How many submissions were made to Quark Matter in 2026?*
- *What is the process for publishing a paper under the collaboration's name?*
- *Which papers are currently in the publication queue?*

Every large international scientific collaboration deals with these types of questions

# What are collaborative tools

Software designed to help individuals and teams work together more effectively.

Facilitate communication, coordination, and cooperation among team members, regardless of physical location.

**Scientific collaborative tools are essential for international research.**

# Challenges Associated to Collaborative Tools

**Technical & Integration Issues**: Compatibility between software can make integrating of various tools into a seamless workflow difficult.

**Adoption Resistance**: Users may resist new tools due to familiarity with ‘old’ systems, requiring extra communication to overcome this barrier.

**Communication & Cultural Barriers**: Differences in language, communication styles, and work culture can lead to misunderstandings, inefficiencies, and friction.

# Collaborative Tool for International Scientific Collaboration

**Glance**, Developed at CERN for the ATLAS experiment, it is the only tool currently designed for large-scale international scientific collaboration.

- Adopted by other CERN experiments for some functionalities.

**Limitations**:

- Deeply integrated with CERN's infrastructure, making it unsuitable for direct use at BNL.

**Chosen Direction**:

- Develop integrated tools based on BNL's expertise and existing software.
- Insights from the Glance team will guide the development of **CRISP**, a more adaptable tool tailored to ePIC requirements.

**CRISP**

**C**ollaborative **R**esearch **I**nformation **S**haring **P**latform

# Architecture of CRISP

A modular set of tools accessible through Federated Identity mechanisms

**Authorization** provided by COmanage

Digital **Directory**: Contains information about Institutions, Members, Events, Documents, Groups, Tasks and their relations

Digital **Repository**: Store and preserve documents (internal and public).

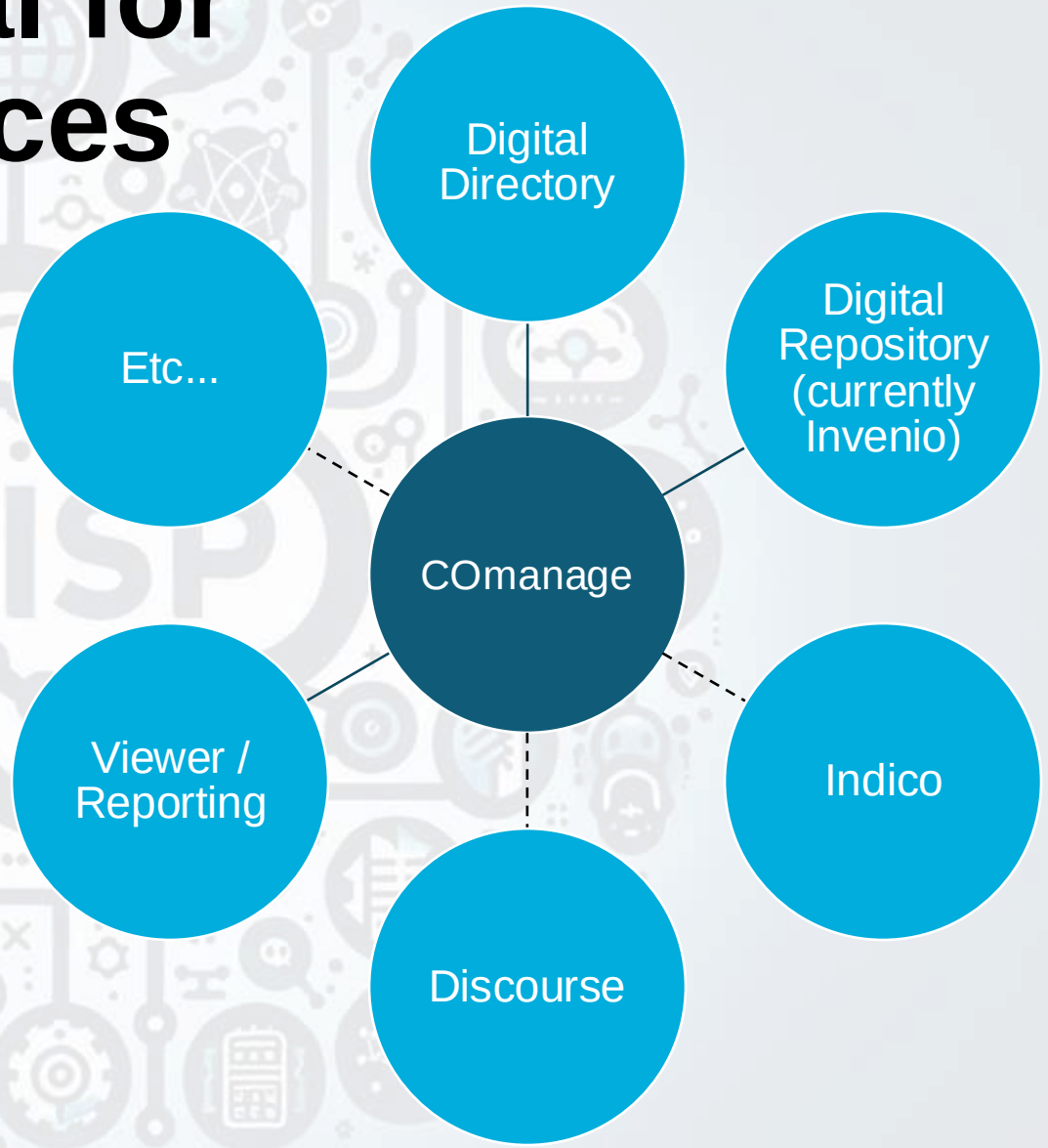
**Viewer**: Present various views of the system:

- Pages for individuals (history, …)
- Pages for institutions (members, history, contributions)
- Pages for Publications (publication process and progress)

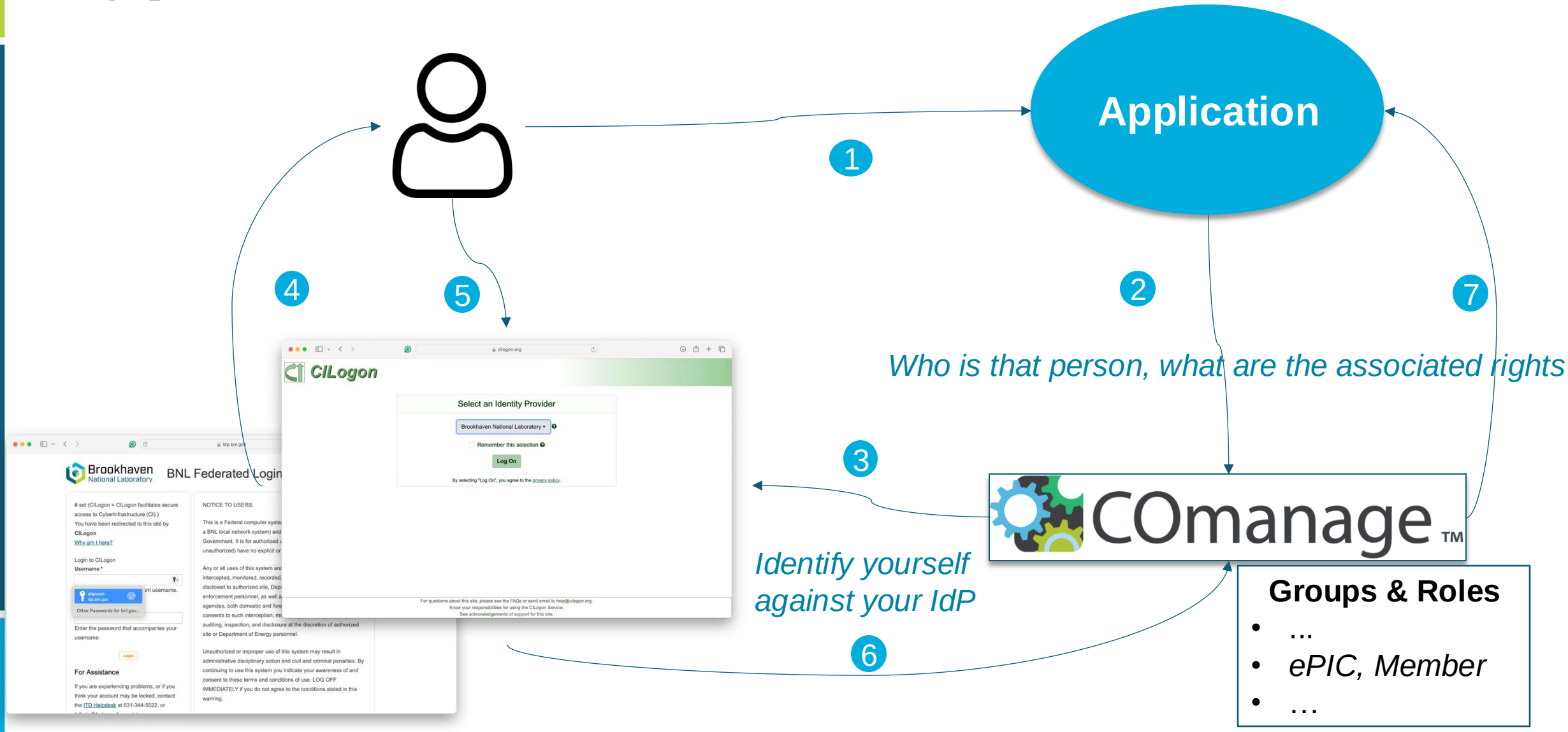
Possibly **connected** to other **existing** tools (for example: Indico, Discourse, ...)

# Comanage is central for accessing the services

- The Digital directory defines groups and roles that are synchronized with Comanage
- Which is used to manage authorization to access services (like e-groups at CERN)
- Groups are mapped onto Invenio communities for example

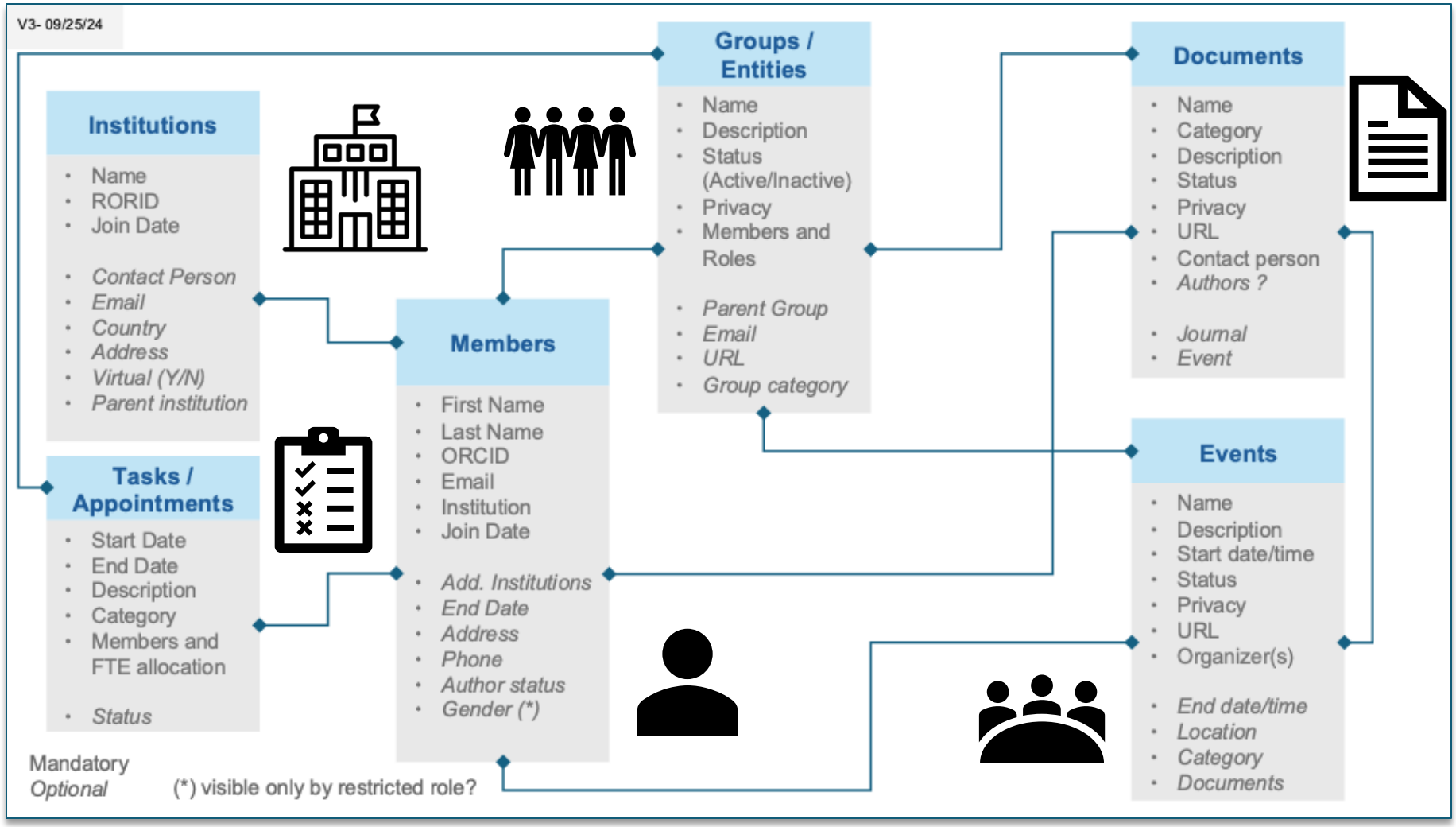


# Typical user workflow



# The Digital Directory - I

Repository of global information relevant to the collaboration



# The Digital Directory - II

History is logged

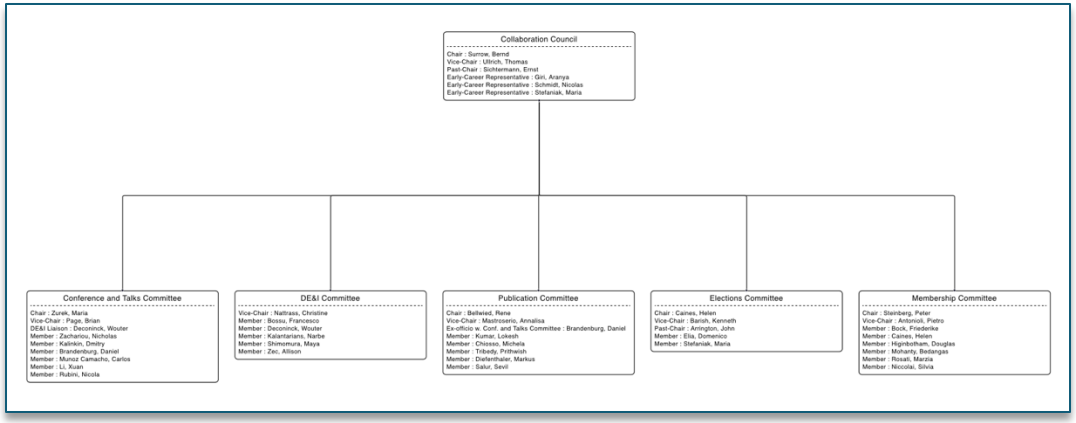
Rely on ORCID for member disambiguate (anyone can get one in 5’)

Institutions:

- Defined by their ROR ID
- Can be nested or virtual

Groups:

- Hierarchical layout
- With various roles for members




The current prototype fulfills ePIC collaboration requirements

# COmanage

Groups and roles synchronized from the Digital Directory

Defined into '*igroups*' that are used by other applications

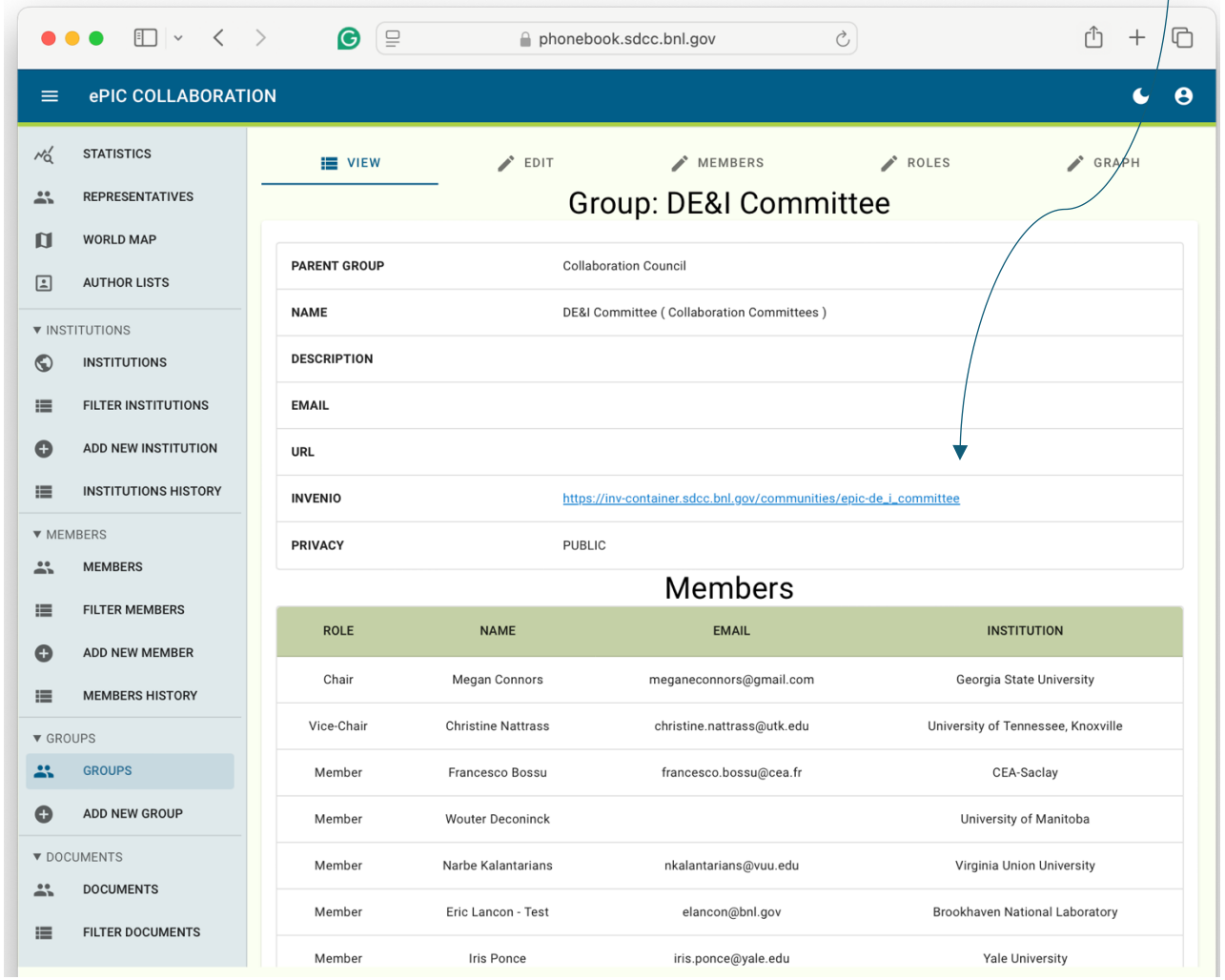
- Work in collaboration with JLAB

Currently interfaced with Invenio

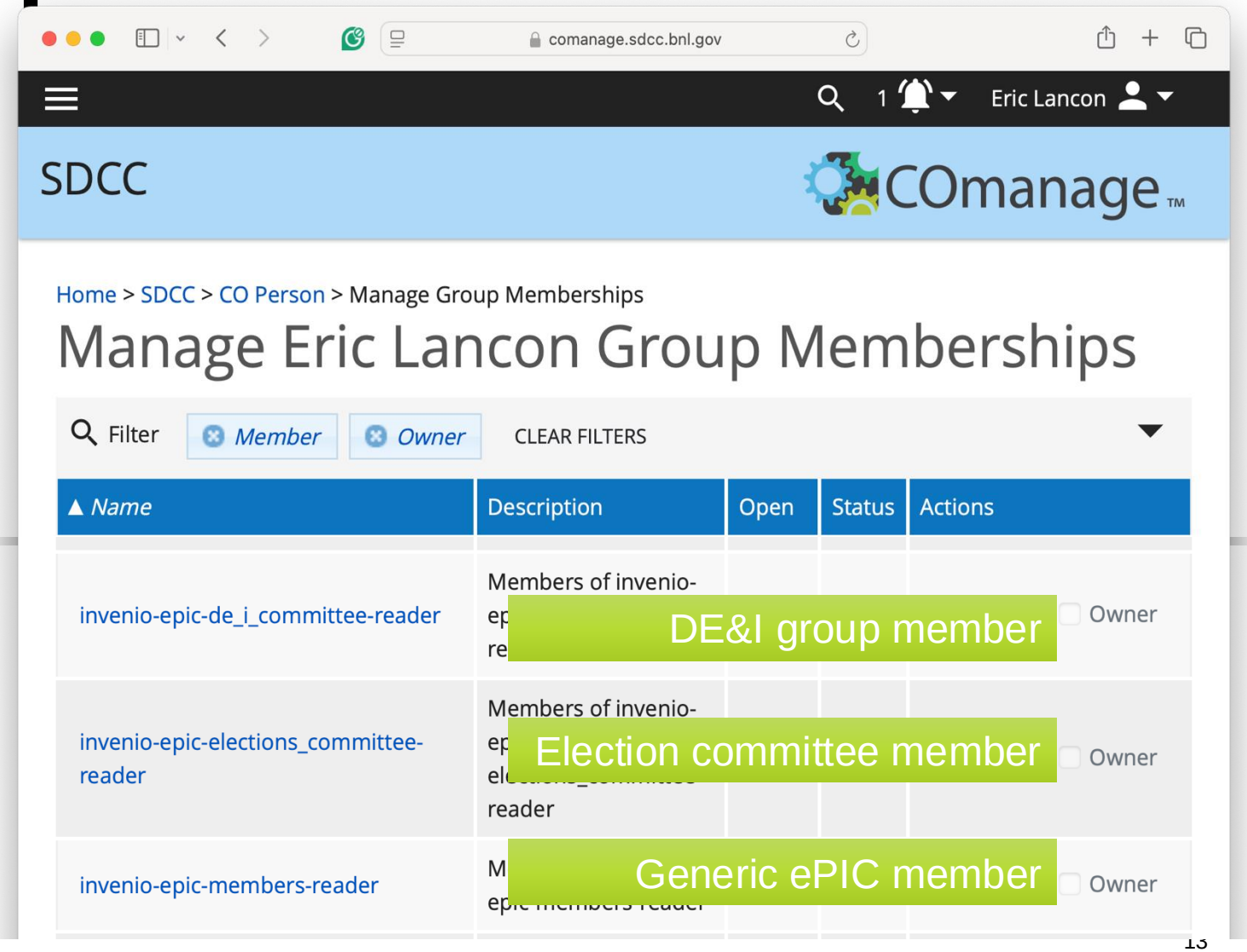
- Project with ITD to interface with BNL's Indico

# Phonebook group

Link to Invenio



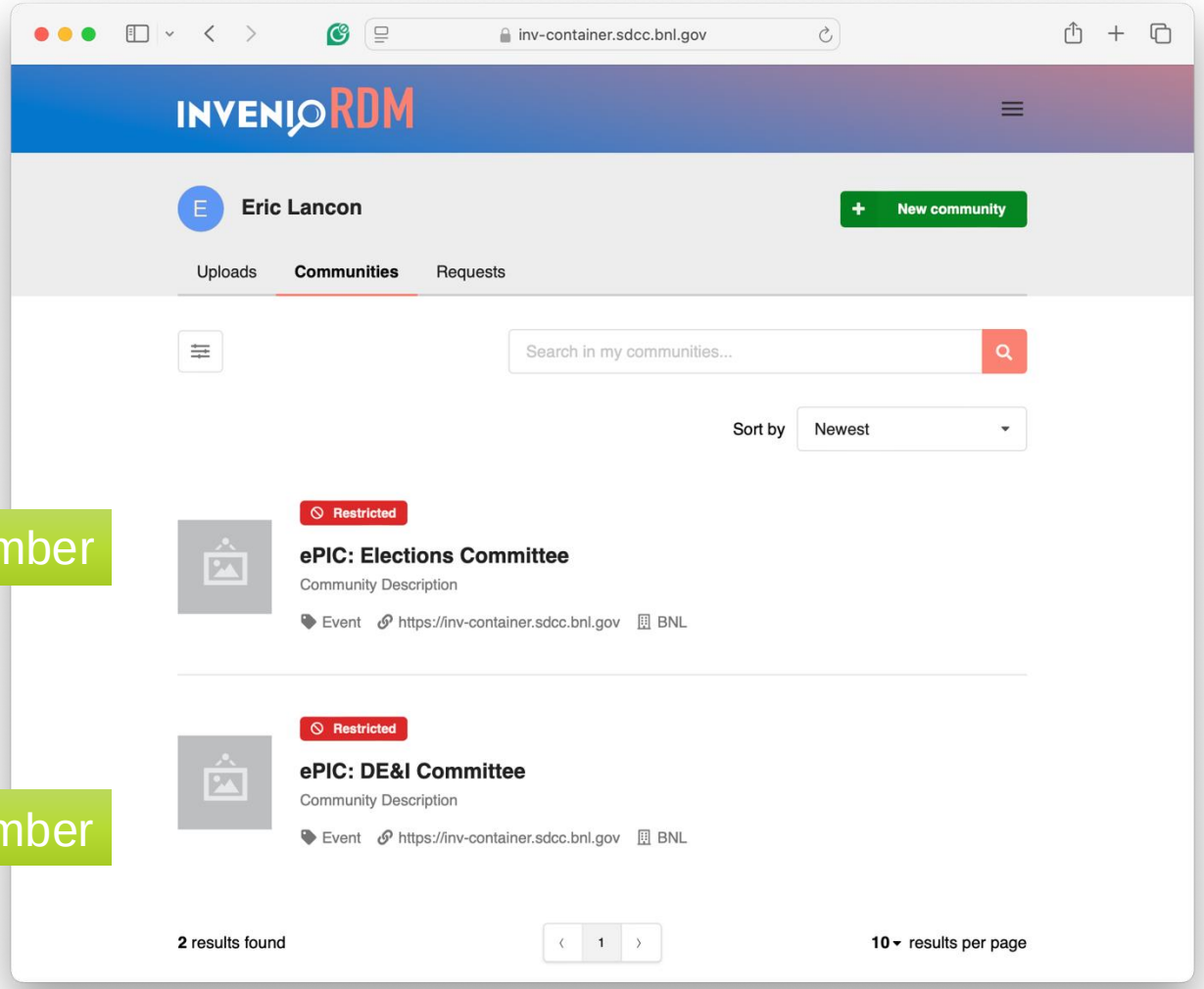
# Comanage groups



# Invenio Comunities

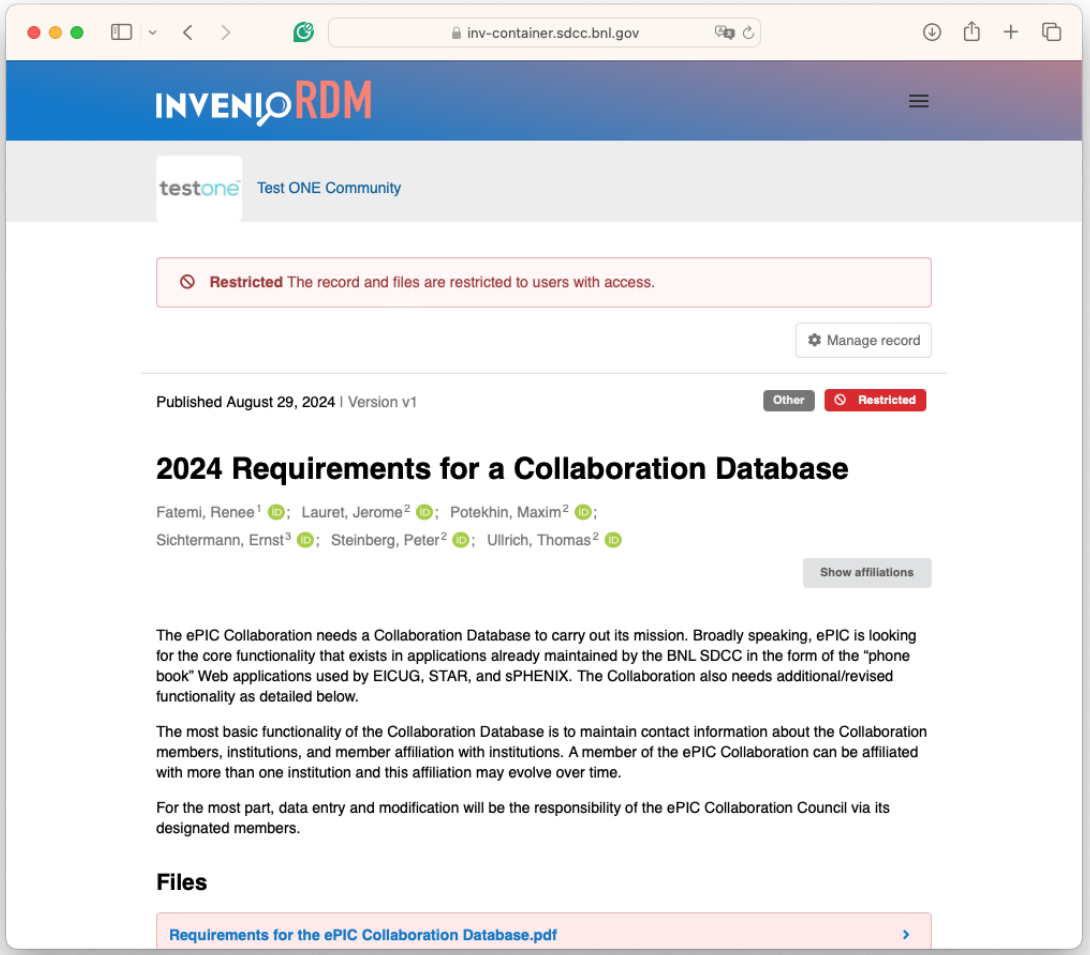
DE&I group member

Generic ePIC member



# Digital Repository

- Based on Invenio v12
- Federated Identity is enabled
- Keywords and DOI are enabled
- Invenio communities map on Directory's groups
- Authorization through COmanage groups and roles. Currently:
  - Reader: read and comment
  - Manager: can also manage records



# Future works

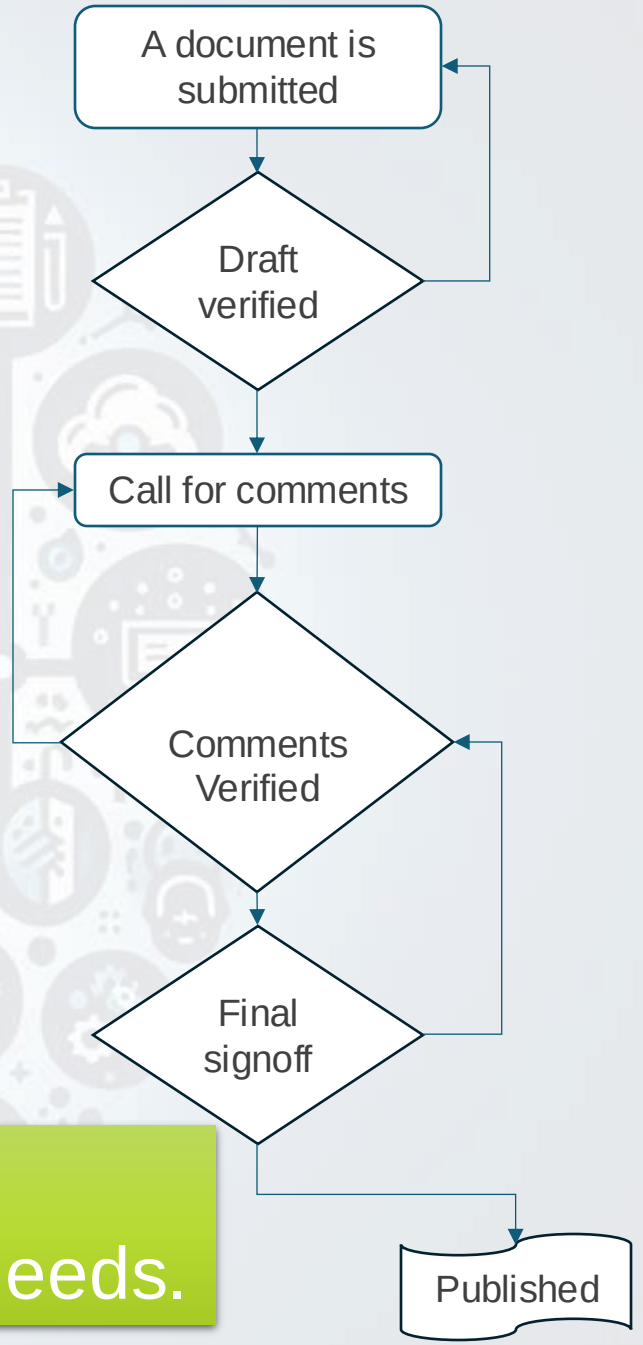
Implementation of **Viewer**

- Display individual member roles and collaboration history.
- Show institutional contributions to collaboration.
- Track tasks and appointments

Implement basic document workflows

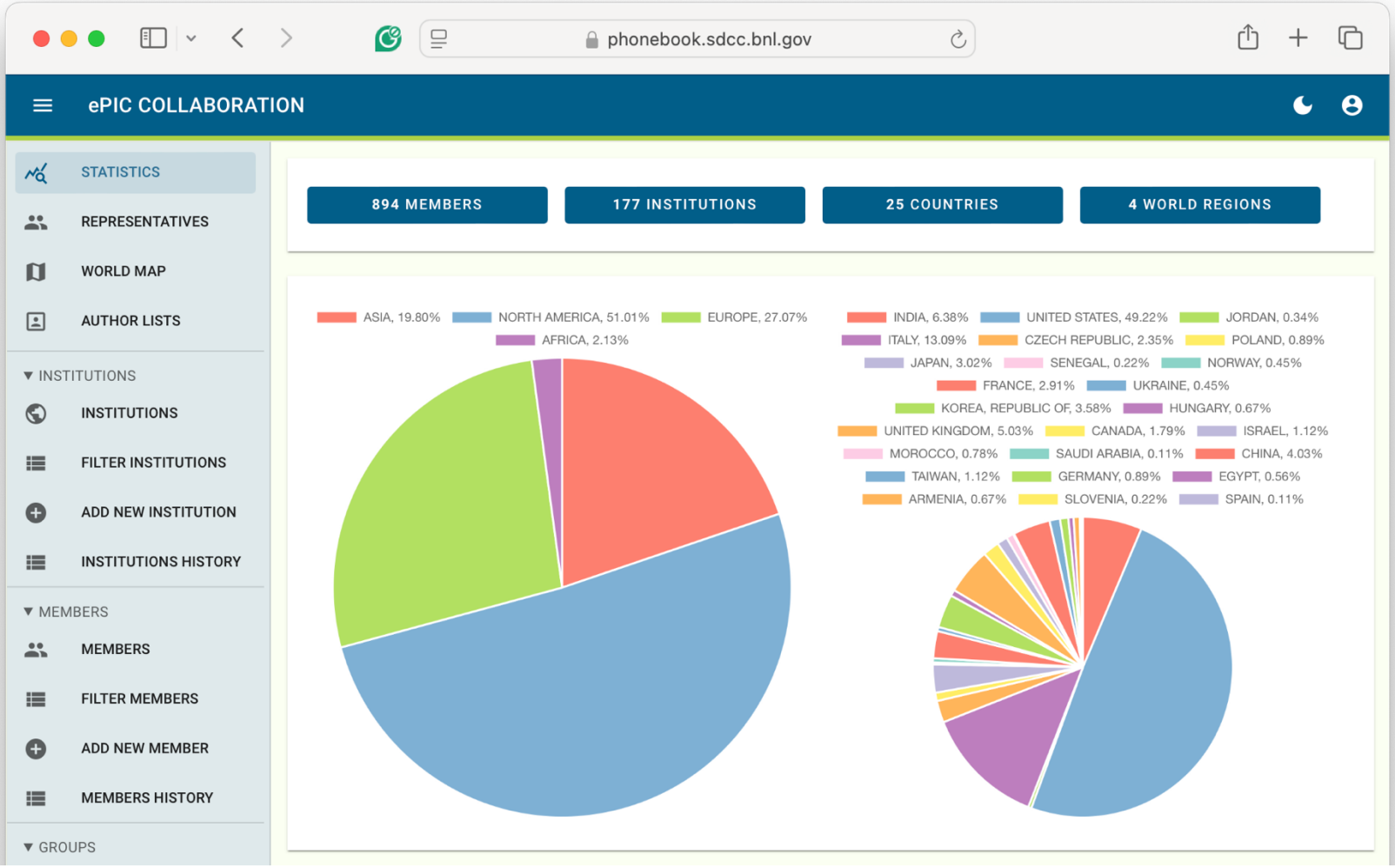
Prototyping of Digital Repository with various use cases

Connection to Indico




**Keywords**
Simplicity, user-friendliness, and meeting users needs.

# ePIC statistics



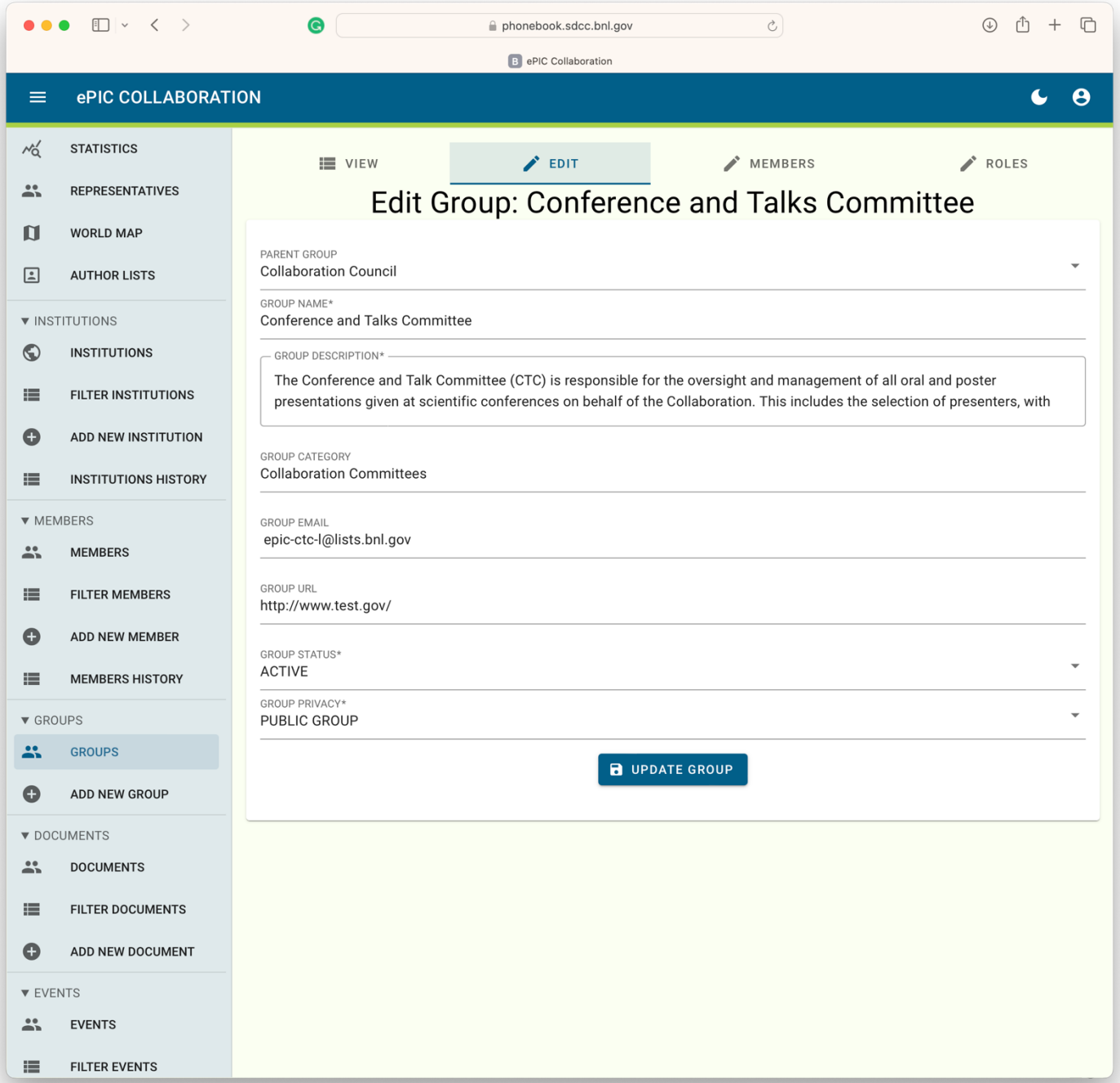
# Thank you

## For FY25-26, the project leads will be Peter and Ofer (co-PIs)

CRISP

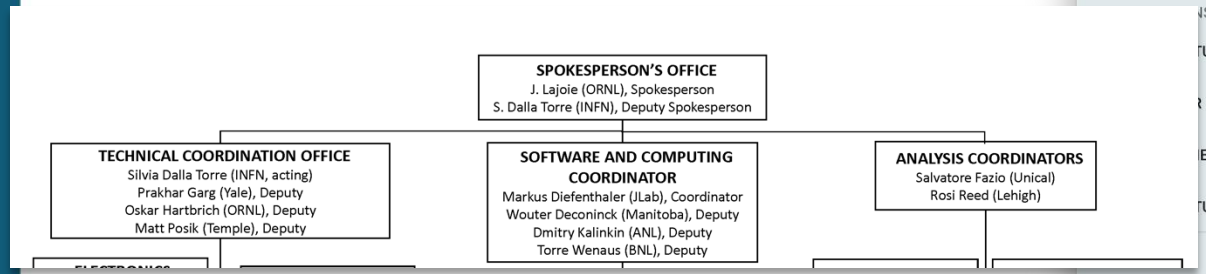
# Group attributes

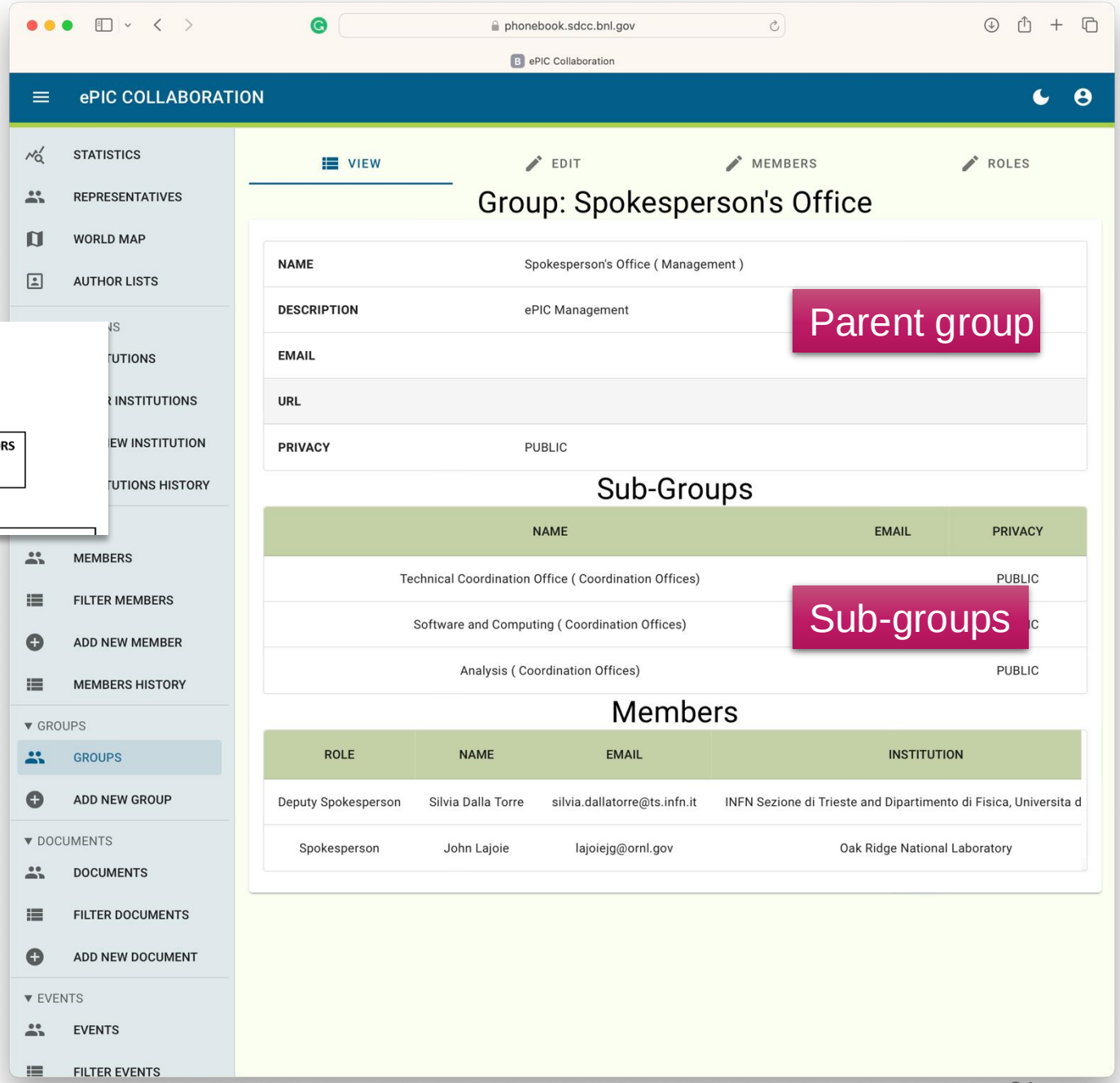
- Parent (optional)
- Name
- Description
- Sub-Category (optional)
- Email
- URL
- Status (active/inactive)
- Privacy




Brookhaven National Laboratory

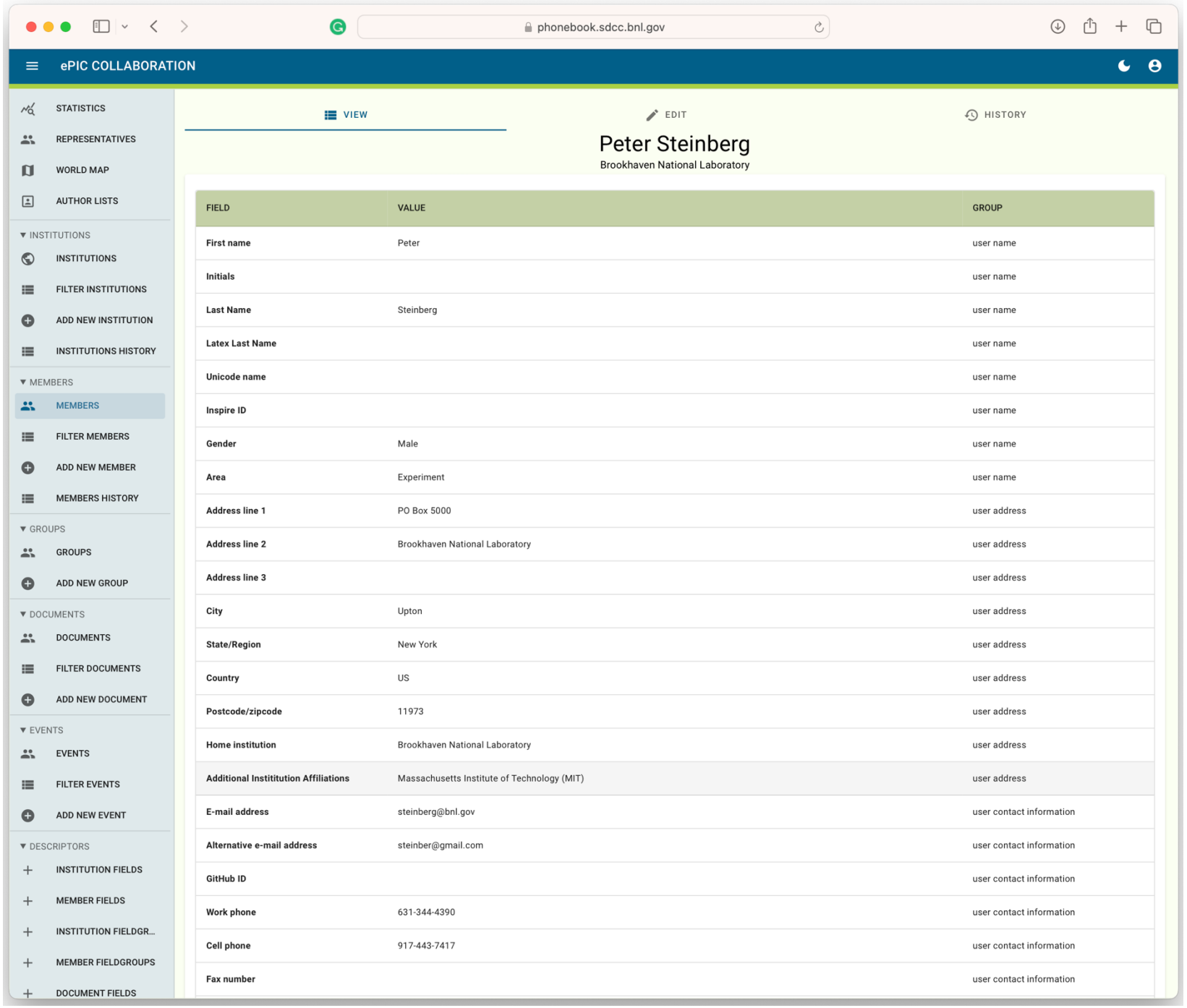
# Example: Coordination offices



# Member attributes

- Firstname
- Lastname
- E-mail
- Institution
- ORCID
- Member of Council
- ...




Brookhaven National Laboratory

# Some of the features of Glance

**Unified Data Access**: Glance provides a unified interface for accessing data from distributed databases.

**Accounting and Tracking**: Glance is used to manage the accounting of contributions for the personnel involved in the ATLAS experiment.

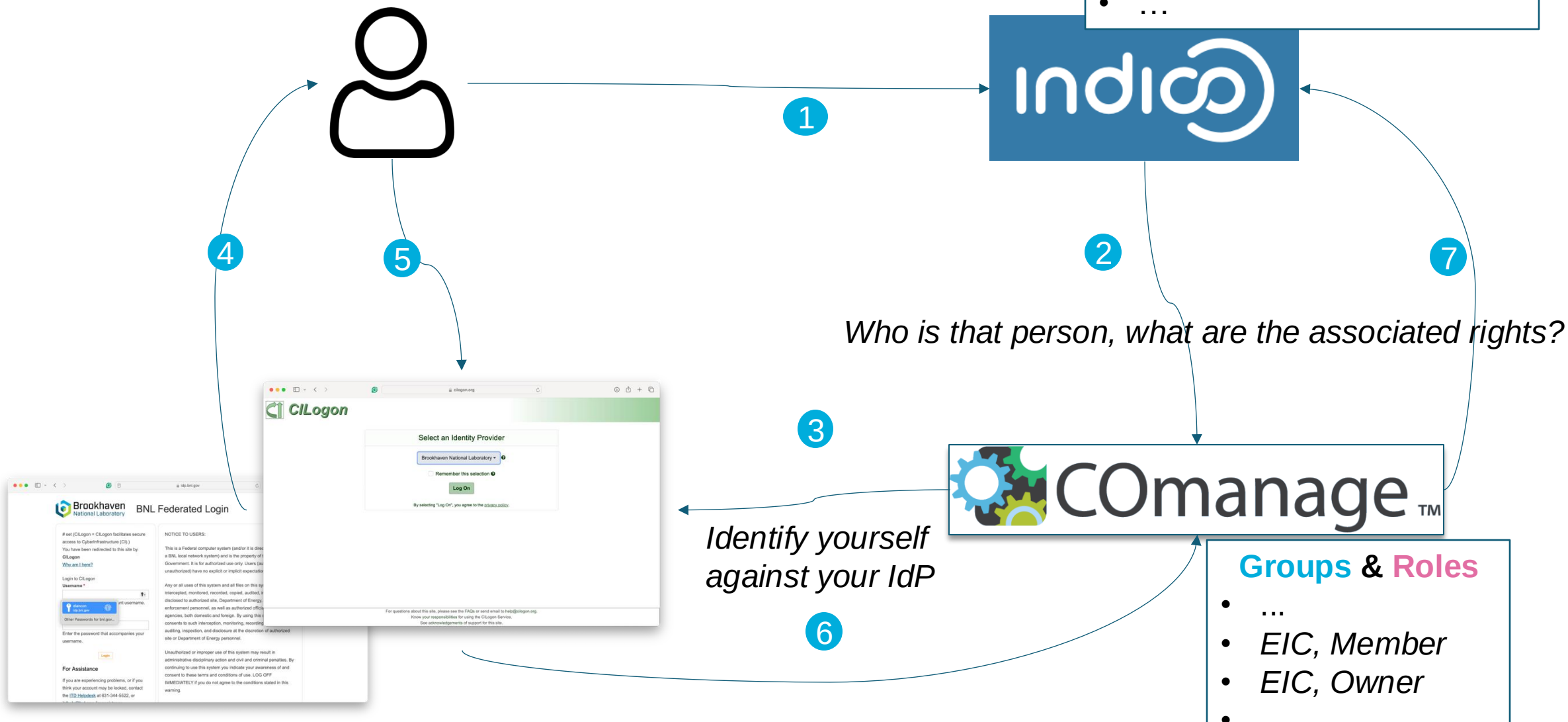
**User and Institutions Profiles**: Glance supports creating and managing user profiles, including contact information and statistics.

**Pre-defined workflows**: Glance provides pre-defined workflows (from draft to public release, including editorial review) for documents (publications to journals, conferences, technical notes)

# Mapping COmanage Groups & Roles with Indico Categories & Permissions

**Categories & Permissions**

- …
- *EIC meetings, Access*
- *EIC meetings, Manager*
- …




**Groups & Roles**

- …
- *EIC, Member*
- *EIC, Owner*