Overview on Electronic Lab Notebook (ELN)

Enhancing Research Efficiency

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Introduction to Electronic Lab Notebooks (ELN)

Definition:

Electronic Lab Notebooks (ELN) are digital counterparts to the traditional paper lab notebooks used in scientific and research settings. They serve as comprehensive platforms designed to facilitate the organization, documentation, and collaboration of laboratory work in a digital format.

Purpose:

Streamline and enhance the documentation of laboratory work.

Features of ELNs

Why Choose Electronic Lab Notebooks?

1. Digital Format:
- ELNs replace physical notebooks with digital interfaces.
- Entries can include text, images, charts, and multimedia.

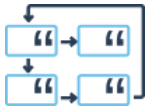
2. Organization and Accessibility:
- Data is organized systematically for quick retrieval.
- Researchers can easily locate and access specific information.

3. Collaboration:
- ELNs enable real-time collaboration among team members.
- Researchers can share data, findings, and insights seamlessly.

4. Security Measures:
- Enhanced security compared to traditional notebooks.
- Encryption and access controls ensure data integrity and confidentiality.

5. Version Control:
- Track changes and maintain version history.
- Easily revert to previous versions.

Electronic Lab Notebook Features



Create an experimental workflow

Data Elements

Create shared projects

Store and share protocols/templates

Discuss your data

Databases and Items

Full Audit Trail

Filters & Tags

Time Stamps

Universal and Advanced

Electronic Lab Notebook Features

In its most basic form of Electronic Lab Notebooks might simply provide a word-processor-like interface to replicate the way you currently use a paper notebook, but with additional benefits such as shareability, searchability, password protection and backup.

Integrate all your data

Customize your entries

Open documents

Access your data everywhere

Visualize and annotate images

Export your data

Use Cases

1. Research Labs:

- Ideal for documenting experiments, protocols, and results.
- Enhances the efficiency of data analysis and interpretation.

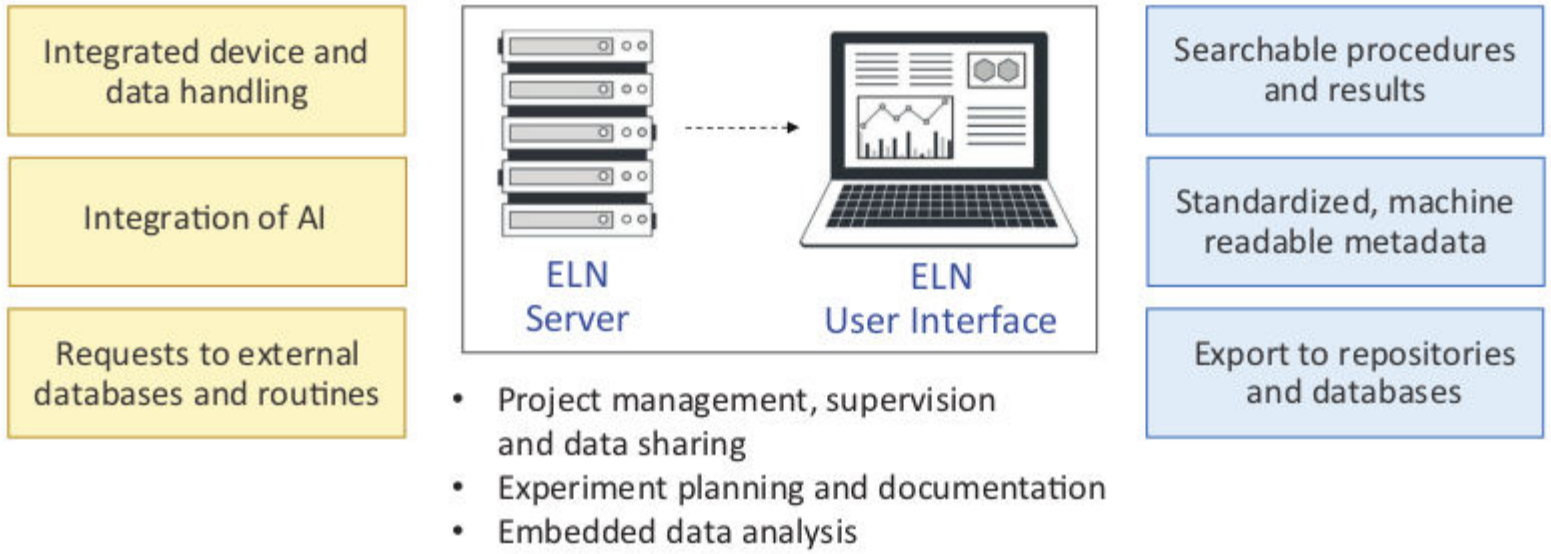
2. Pharmaceutical Industry:

- Supports the rigorous documentation required for drug development.
- Aids in ensuring traceability and reproducibility of experiments.

3. Academic Institutions:

- Useful for students and researchers in various scientific disciplines.
- Promotes collaborative research and knowledge sharing.

Benefits and characteristics of ELNs



The benefits of using an ELN for the management, documentation, and analysis of scientific data.

- Left in yellow: benefits related to the support of the scientists' work processes

- Right in blue: benefits related to a later re-use of the data and metadata

Challenges and Solutions

Addressing Challenges in ELN Implementation

1. Data Security Concerns:

- Highlight robust security measures.
- Compliance with data protection regulations.

2. User Adoption:

- Strategies for overcoming resistance to adopting ELN.
- Ongoing support and training.

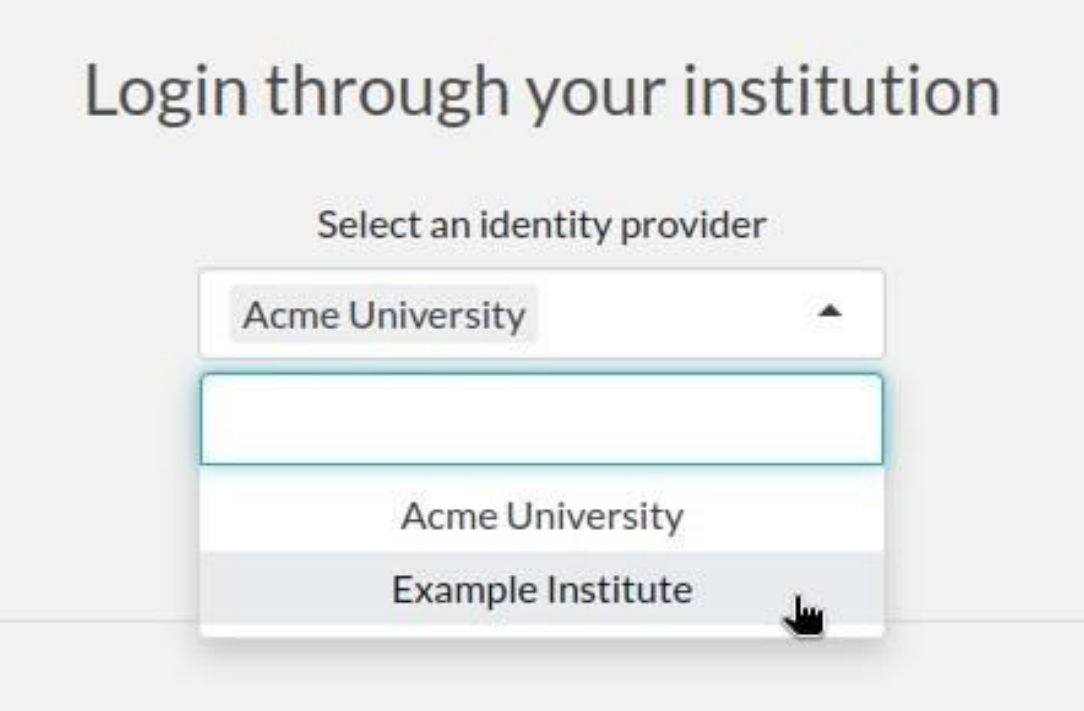
Streamline your research with eLabFTW: A powerful ELN

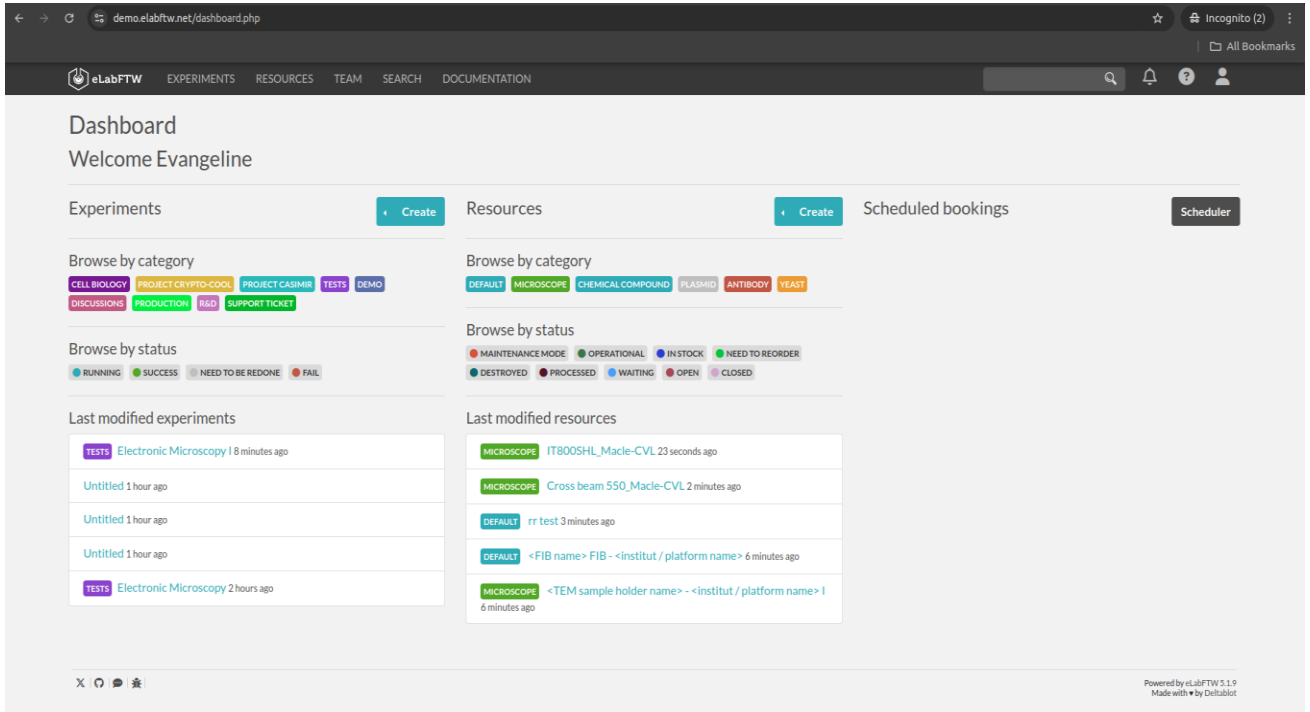
Open source software: eLabFTW = ELN + Laboratory stock management (LIMS)

… allows you to:

- Store digital results in a digital notebook
- Share procedures and protocols through templates
- Collaborate on scientific results
- Improve probity, traceability and integrity of results
- Use tablets or phone to access it
- Highly customizable database to store:
    - Antibodies
    - Plasmids
    - Cell lines
- Chemical products
- Equipment (and booking system)
- Basically any kind of resource → every team can configure it
- Community: large user base from various domains
- A major actor in open science and FAIR data, Increases interoperability of data (FAIR)
- Cryptographic signatures
- Quality and security
- Email collaboration within/across the teams

Centralized Authentication

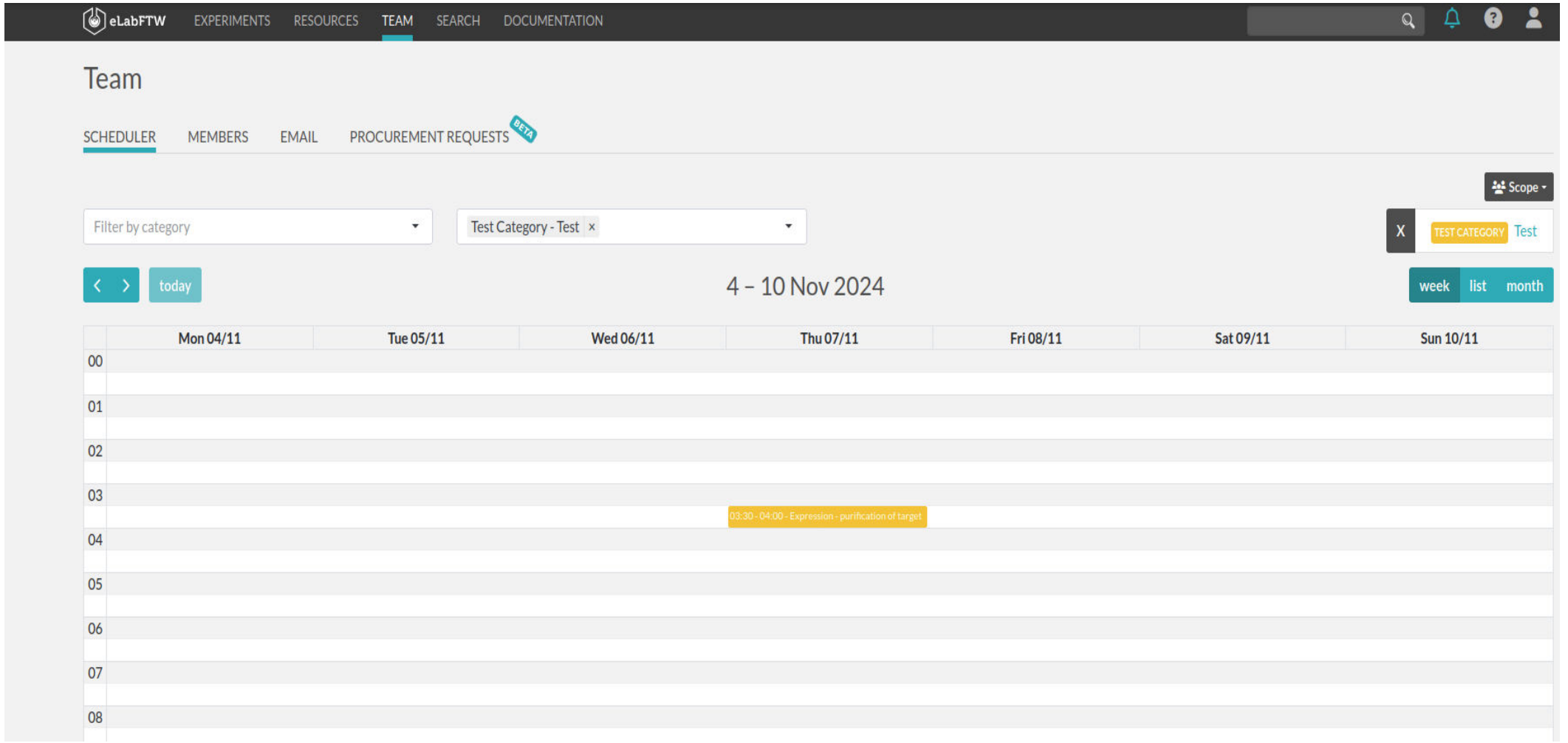




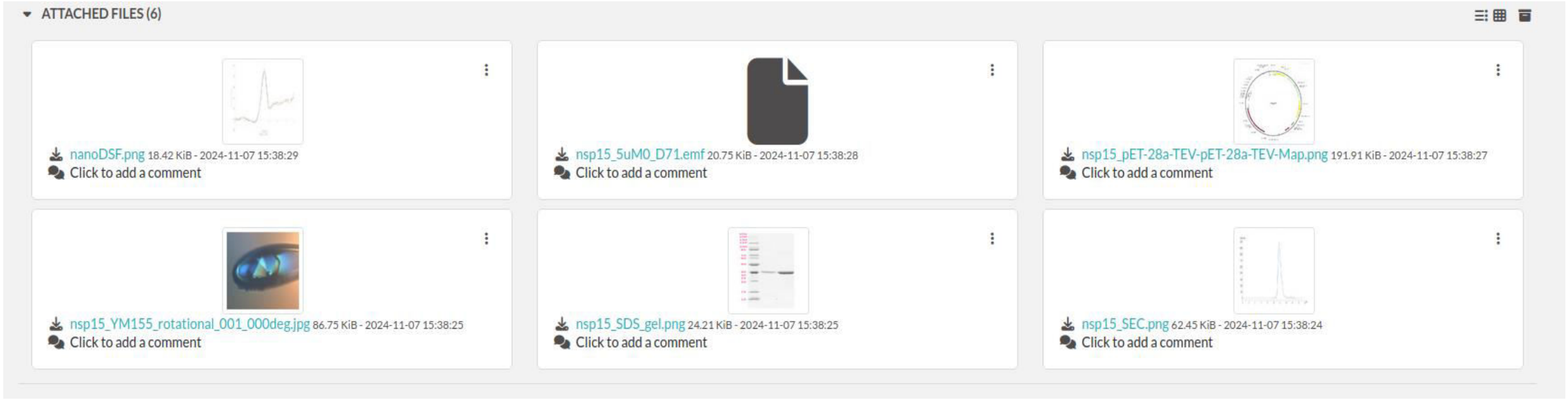
- Use your institutional authentication service
- Support for federated services
- SAML or LDAP protocols

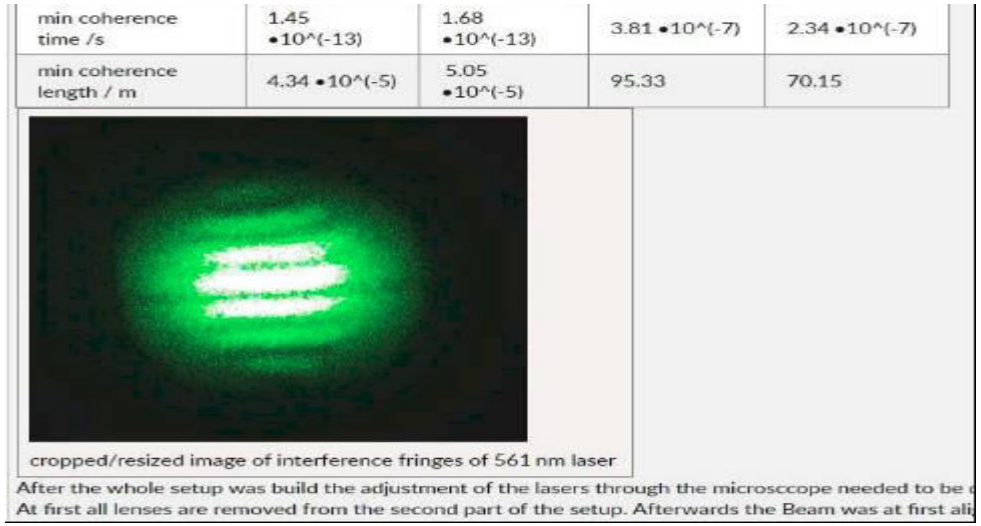
Create items to book or to inform other about:

Holidays, Work Trips, Experimental Setups, Repair Page, etc



Attach the files(figures, plots etc.) you created and insert them into the text body





All changes you make are tracked and can be seen by others

ElabFTW vs ELOG PSI

Feature	ELABFTW	ELOG PSI
Data Structure		
Flexible Data Structure (Rich Text, Custom Fields)	✅	❌
File Attachment	✅	✅
Search and Filtering		
Advanced Search and Filtering	✅	✅
Collaboration and Sharing		
Team Collaboration and Sharing	✅	✅
Access Control	✅	✅
Export and Import	✅	✅
Integration		
API Integration	✅	❌
Customizable Workflows	✅	❌
User Interface		
Intuitive Design	✅	❌
Customizable Dashboard	✅	❌

Acknowledgment

Main website: https://www.elabftw.net

Documentation: https://doc.elabftw.net

Live demo: https://demo.elabftw.net

Source code: https://github.com/elabftw/elabftw

Q&A

Thank You!