

Comparing ELNs: A Checklist

Evaluating and selecting an electronic lab notebook for your lab, department, or institution can be a tricky process. Fundamentally it is a matter of assessing your needs and finding an ELN that fulfills them. This checklist provides an overview of ELN features and considerations to aid in your decision.

Features and Tools

Basic Features	<i>Electronic Lab Notebooks</i>		
Document creation and sharing			
Reusable templates and document structures			
Image annotation			
Chemical structure drawing and editing			
Internal messaging and communications			
Versioning and revision history			
Audit history and analysis			

Add-ons	<i>Electronic Lab Notebooks</i>		
Signing and witnessing documents			
Sketching or drawing tools			
Sample management			



Practical Considerations

Cost	<i>Electronic Lab Notebooks</i>		
License fee			
Fee to create or manage groups			
Data storage charges			

Ease of Set Up	<i>Electronic Lab Notebooks</i>		
Getting started guide/video help			
Simple creation of groups and users			
Customizable, sharable templates			

File Management	<i>Electronic Lab Notebooks</i>		
File and document import and export			
File retention and management			
Integration with Dropbox, Box, Google Drive and One Drive			



Collaboration within group/lab	<i>Electronic Lab Notebooks</i>		
Intuitive document sharing			
Collaborative document editing			
Multi-user commenting			

Collaboration between groups/labs	<i>Electronic Lab Notebooks</i>		
PIs can establish contact with other labs			
Multiple group collaboration support			

Lab Management	<i>Electronic Lab Notebooks</i>		
PIs can easily check the work of each lab member			
PIs can delegate administration to another group member			
Simple to add and remove members from a group/lab			



Ease of Export	<i>Electronic Lab Notebooks</i>		
Supported formats: – PDF – HTML – XML			
Data can be exported by: – Users – PIs – Administrators			
Export configuration options: – All document types – Multiple documents – Notebooks – Entire lab’s output – User’s complete content			

Support	<i>Electronic Lab Notebooks</i>		
Modern user communication platform (e.g. Intercom, Salesforce)			
Quality, timely responses to user queries			



Future-Proofing	<i>Electronic Lab Notebooks</i>		
Convenient export options			
Compliant with funder requirements on data sharing and preservation			
Integration of institutional research data management standards and infrastructure			

Security	<i>Electronic Lab Notebooks</i>		
User data encryption: – at rest – over a network			
Logging of data posts and login sessions			
Takes precautions against common attacks such as: –cross-site scripting – SQL injection – session hijacking – password hacking – role escalation			
Independent security accreditation			



Institutional Deployments

Questions to consider

- Does the ELN possess sufficiently wide capabilities to meet the needs of the researchers your institution?
- Has the ELN been specifically designed for use and deployment in academic research institutions?
- Can the ELN be deployed on-premises, as well as on the cloud?
- How easy is it to move the ELN if your server environment changes?
- Are online training materials sufficient to enable most groups to get started quickly? If not, what supplementary training options are provided and at what cost?
- How well does the ELN's security model integrate with your institution's security environment?

Deployment	<i>Electronic Lab Notebooks</i>		
Single sign-on (SSO) integration			
Support for Shibboleth/LDAP			

Administrative Controls	<i>Electronic Lab Notebooks</i>		
Robust system administration features			
Multiple, configurable levels of admin			
Intuitive dashboard for admins			



Usability	<i>Electronic Lab Notebooks</i>		
User-friendly, intuitive interface			
Support for pre-existing user workflows			
Straightforward in-app navigation			
Robust online training materials			

IP Protection	<i>Electronic Lab Notebooks</i>		
Automatic versioning of documents with access to all revisions			
Documents can be signed (locked for editing) and witnessed as complete			
Searchable audit trail of user actions			

Integration with File Stores	<i>Electronic Lab Notebooks</i>		
Support for linking to multiple file stores			
Configurable file store access interface			



Collaboration	<i>Electronic Lab Notebooks</i>		
Support for collaboration within groups and/or labs			
Support for inter-group/lab collaboration			
Support for inter-departmental/school/institute collaboration			

Integration with RDM Infrastructure	<i>Electronic Lab Notebooks</i>		
Data repository integration			
Data archiving capability			
Data synchronization: – built in – separate app			

Security	<i>Electronic Lab Notebooks</i>		
System administrators have the capability to promptly detect security breaches			
Straightforward implementation of backup and disaster-recovery strategies			

