



*The
importance of
an open ecosystem
in future-proofing
the lab*

November 2021

Open Ecosystem in Software

**The importance of an open ecosystem
in future-proofing the lab**



eLabJournal



eLabInventory



eLabNext
EPENDORF GROUP

Table of contents

The importance of an open ecosystem in future-proofing the lab	3
What does an open ecosystem in software entail?	3
Why a future-proof ecosystem matters in research	5
Making the right choice	7
An open ecosystem ELN and sample management software	7

The importance of an open ecosystem in future-proofing the lab

Every laboratory is unique in their research and process development workflow. If this is true, why do we expect one electronic lab notebook (ELN) to fit every lab’s unique needs? Additionally, labs should not overpay for features that are not necessary for their research but should be able to adjust for any requirements during the growth of their lab over time. Open ecosystem, a system that mimics open source, gives users the freedom and opportunity to customize their ELN to match their exact workflow while keeping data safe and secure. Selecting an open ecosystem solution enables users to future-proof the growth of their organization and ensure long-term scalability of their research tools.

What does an open ecosystem in software entail?

An open-source software, not to be confused with that of an open ecosystem, is software for which the original source code is freely available to the public so that anyone may download and modify it for their own use or redistribution. Figure 1 shows how hackers can interact with the source code while using many different languages. At any time, users may return to the source code to learn, improve, and innovate with it. This type of software is usually free, can result in lower costs and long-term flexibility, but vary largely in quality since it is developed and supported by users rather than developers. Open source software is known to have many security issues, as it is dependent on the user base to identify them. It does not operate under a single entity with strict ISO-type procedures in place. Users generally code ‘for fun’, with a strong focus on pure functionality in lieu of quality and security.

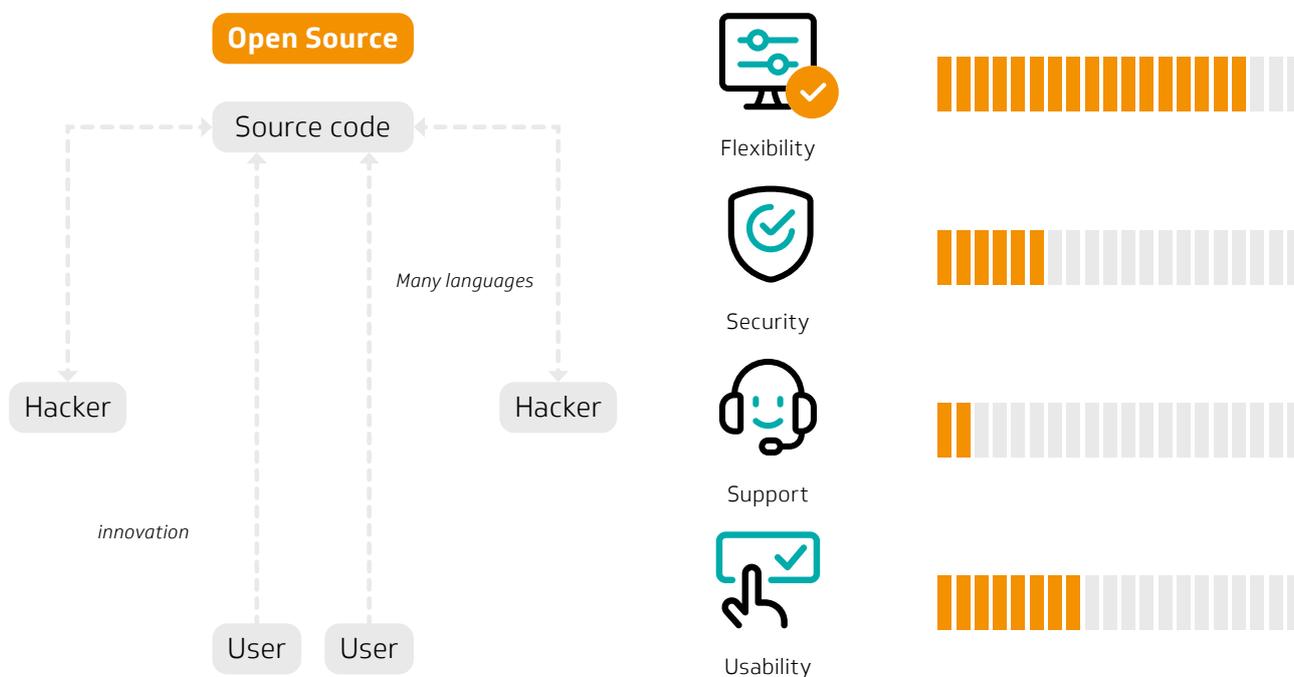


Figure 1: An open-source software is usually free, can result in lower costs and long-term flexibility, but vary largely in quality since it is developed and supported by users rather than developers.

“An open ecosystem is an ideal combination for users to be able to personalize the software to fit their exact workflow without limits while ensuring security, support and usability.”

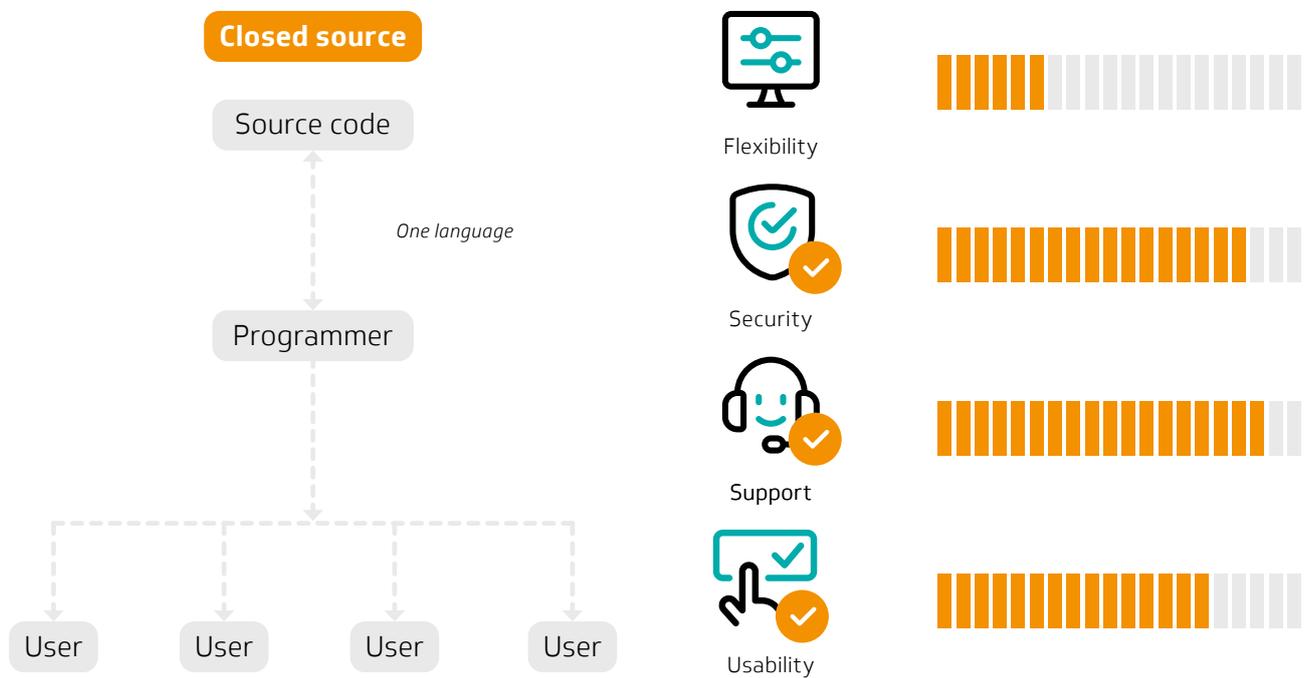


Figure 2: Closed systems often have better security, continuously improving usability, reliable support, and a lower requirement for technical skills since the user is getting the end-product.

Conversely, a closed-source software is software for which the source code is not open to the public; therefore, it is protected and only modifiable by the individual or organization who created it (shown in Figure 2). Only the programmers of the software distributor may interact with the source code and in the one language. Customization is limited to what is offered

by the software vendor, and ongoing costs can be increasingly high due to the level of attention and support that is provided for closed-source software. Closed systems often have better security, continuously improving usability, reliable support, and a lower requirement for technical skills since the user is getting the end-product.

There is no doubt that the flexibility and freedom to alter software to fit the workflow of its user is the most important aspect of open source. That is why an open ecosystem software is the best way to alleviate the issues that arise with either type. Rather than making the source code public for customisation, an open ecosystem creates a sort of platform like that of an open-source software (shown

in Figure 3). This extra layer sits above and separate from the source code so that users may customize and integrate third-party products without compromising the security or usability of the software. An open ecosystem is the ideal combination for users to be able to personalize software to fit their exact workflow without limits, while ensuring security, support, and usability.

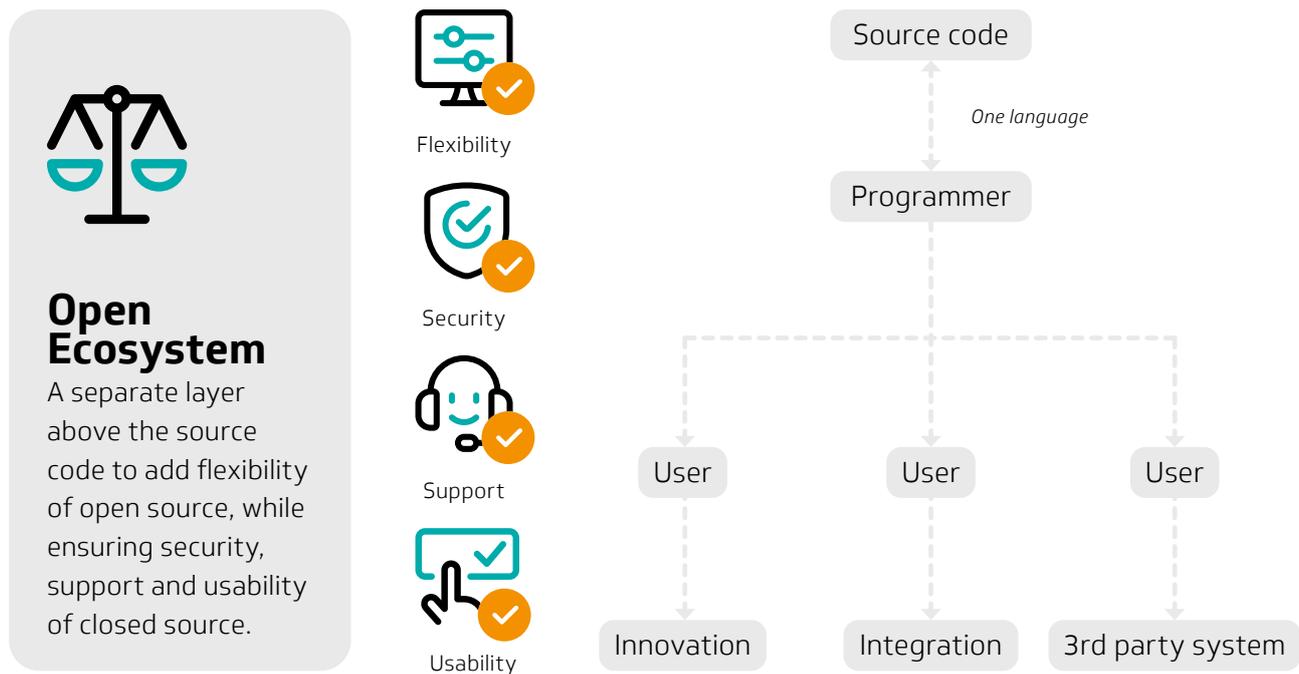


Figure 3: An open ecosystem brings different platforms together to create the best possible solutions.

Why a future-proof ecosystem matters in research:

From hardware for sample barcoding to software for tracking sample lineage and much more - an open ecosystem is one that gives the user freedom to take ownership of their digital solution and apply any current and potential (third-party) innovation.

Every laboratory is unique. Each unique lab should be able to conform the system to their standards, rather than the other way around. Like an open workspace in the form of an ELN aids greater research collaboration, this type of infrastructure promotes a sort of collaboration across an array of tools and technology. An open ecosystem brings different platforms together to create the best possible solutions.

An open ecosystem future-proofs your research by creating long-run flexibility and scalability. What are the implications? Since an open ecosystem simulates an open-source system in its customizability, it creates a digital solution that is more universally understood,

supported, and has a plethora of material resources available. Users have the freedom to implement their preferred integrations, or even integrate multiple tools into a single platform. Subsequently, they are not forced to use the tools they do not need or like. Suppliers may even develop tools specifically for clients which give them access to an even larger set of products.

Part of the research process for scientists is asking questions and forming hypotheses. It is logical that they would similarly like to be able to research the systems and tools before making any strategic decisions—this would be difficult when confined to the options of a closed system.



Making the right choice

When deciding on a solution, such as an ELN or sample management software, it is recommended that users and their organization select one that has an open ecosystem that is truly secure and scalable. Several precautions can be taken to ensure the openness of the prospective software to avoid disappointment:



Check for ISO-certification

Check for any ISO or similar certification of the company for a truly secure software. Not just certification of the data server they may be using.



Check for API and SDK

Check for availability of the software's API and SDK as these tools enable users to develop their own integrations for their ELN.



Get first-hand experience

Utilise an extensive personal demo, get thorough training on the product, and/or sign up for an unguided trial period.



Ask questions

An unresponsive support team is a good indication of the type of assistance you will receive as client. Reliable support is important.

An open ecosystem ELN and sample management software

eLabNext is a closed source system that offers an Application Programming Interface (API) and Software Development Kit (SDK). An API is the core interface which allows communication between two different platforms, while an SDK is the set of developer tools that allow users to create software applications on a given platform.

Users use the provided SDK to use their own code and create their own add-ons. These add-ons enable eLabNext's closed system to mimic the same openness of a truly open-source solution while taking full ownership of the functionality of their integrations.

eLabNext's popular add-ons include:



Barcode



Eppendorf RackScan



Microsoft Office



FLUICS Print



Sample lineage



Dropbox

Elevating research is important to eLabNext. That is why our team is made up almost exclusively of individuals with life science backgrounds who continue to work with real scientists in the field to improve and add more modules in eLab Marketplace. The purpose of an ELN is to boost productivity and efficiency of the research process for scientists in a world going more and more digital every day.

With eLabNext's open ecosystem solutions, every unique lab is given the flexibility of customising the software to the exact specifications of their research needs while ensuring elevated security, support and usability.

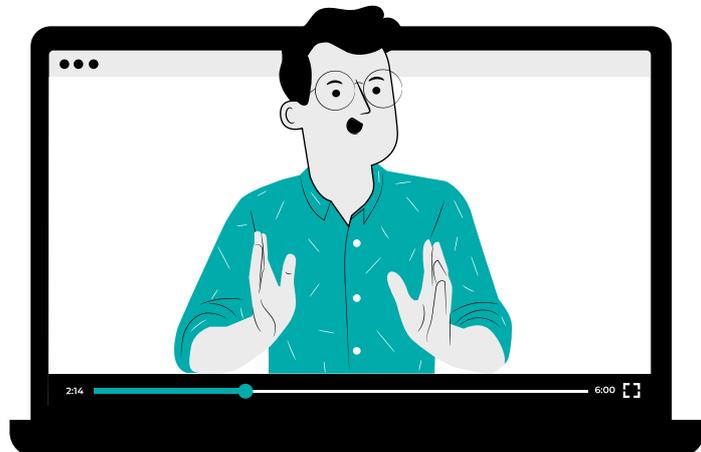


eLabNext is ISO/IEC 27001 certified and regularly practices safety measures to ensure all data is secure.

Get started

Do you want to learn more about **eLabNext's Open Ecosystem products?**

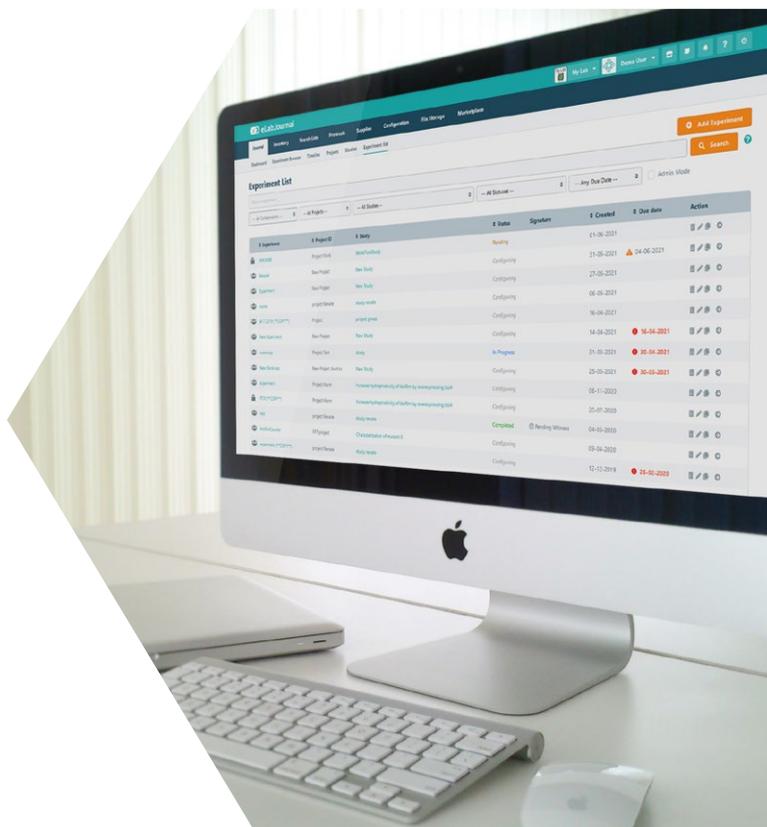
Schedule a personal demo for a free, no obligation product demonstration.





About eLabJournal

eLabJournal offers an intuitive and flexible solution to manage information in your lab. The all-in-one Electronic Lab Notebook also includes modules for sample tracking and protocol management. eLabJournal improves efficiency when documenting, organizing, searching and archiving data, samples and protocols. The software is suitable for any lab ranging from small academic laboratories and start-up companies to large academic institutes and globally operating companies.



✉ enquiries@elabnext.com

☎ +31 50 720 00 55

All of our product specialists have a scientific background and are happy to discuss your needs. Schedule a demo for a free, no-obligation product demonstration.