Open systems & solutions for libraries – a new perspective

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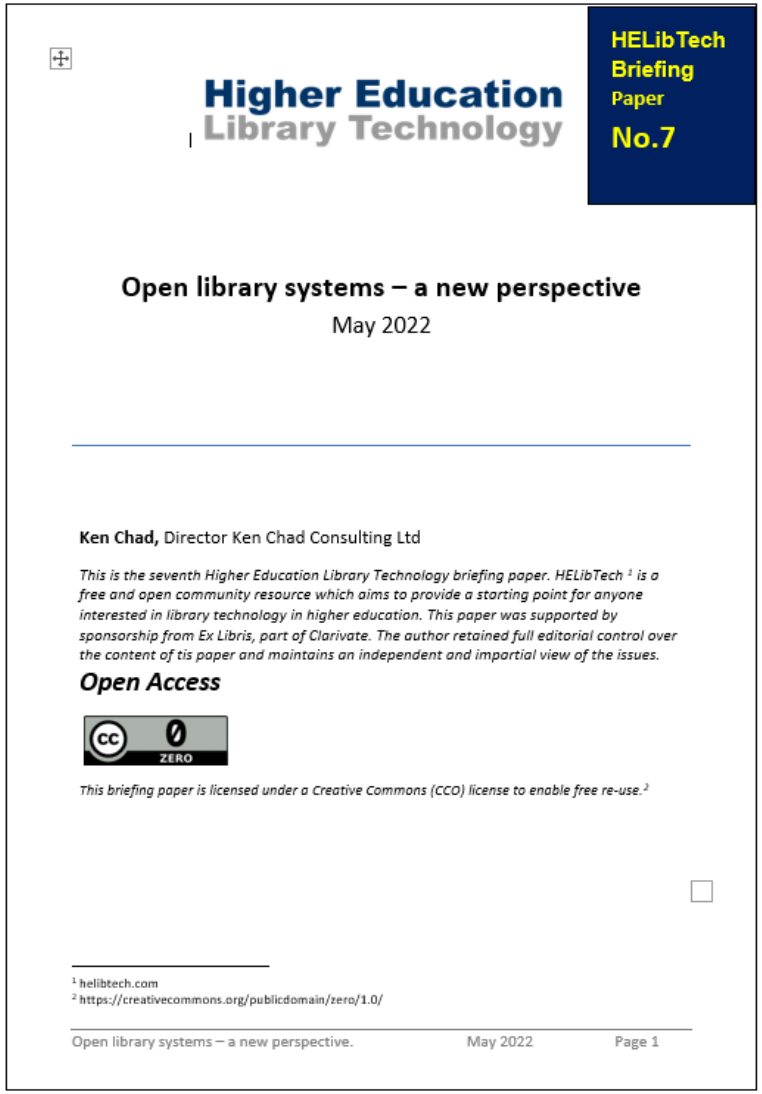
Open library systems – a new perspective

Over the last decade or so, open-source software became, for many, the chief factor in defining open library systems. This presentation argues the need for a new, wider perspective on open library systems.



Higher Education Library Technology

HELibTech Briefing Paper No.7

Open library systems – a new perspective

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Ken Chad, Director Ken Chad Consulting Ltd

This is the seventh Higher Education Library Technology briefing paper. HELibTech [1] is a free and open community resource which aims to provide a starting point for anyone interested in library technology in higher education. This paper was supported by sponsorship from Ex Libris, part of Clarivate. The author retained full editorial control over the content of tis paper and maintains an independent and impartial view of the issues.

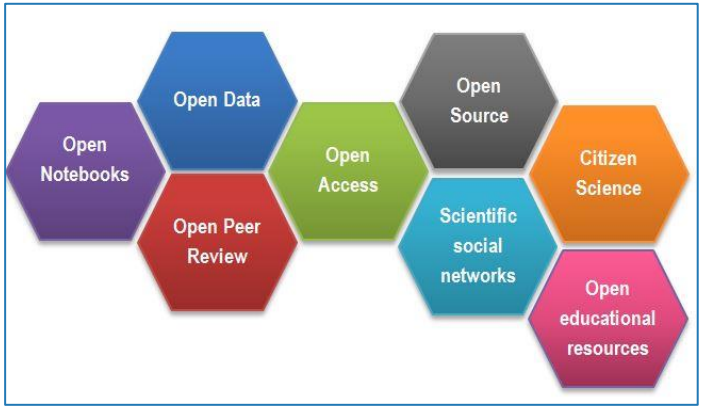
Open Access

[1] helibtech.com
[2] https://creativecommons.org/publicdomain/zero/1.0/

Open is everywhere

Open Access, Open Research/Science, Open Data, Open Educational Resources (OER), open textbooks and open university presses

UNIVERSITY OF SURREY
Open Research



https://www.fosteropenscience.eu/content/what-open-science-introduction

Plan S
Making full & immediate Open Access a reality

Plan S
Making full and immediate Open Access a reality

UK OPEN TEXTBOOK PROJECT

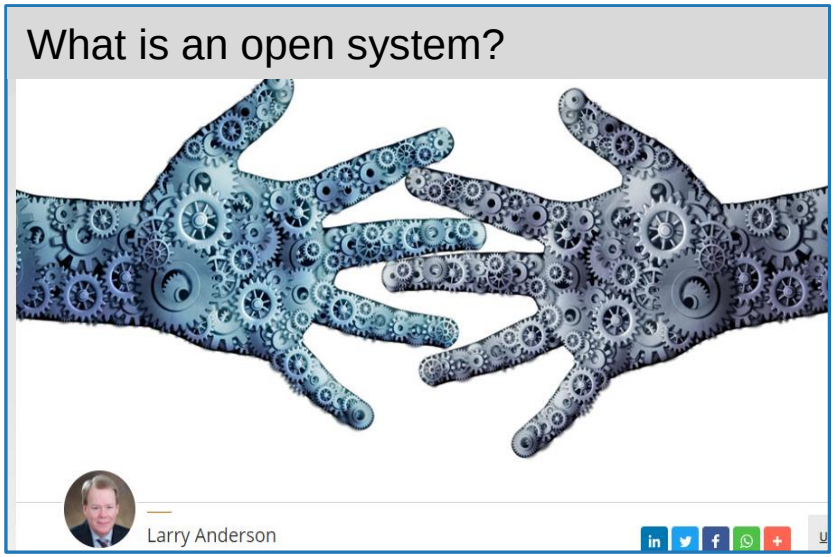
UCL PRESS

Open Educational Resources

What is an open system?

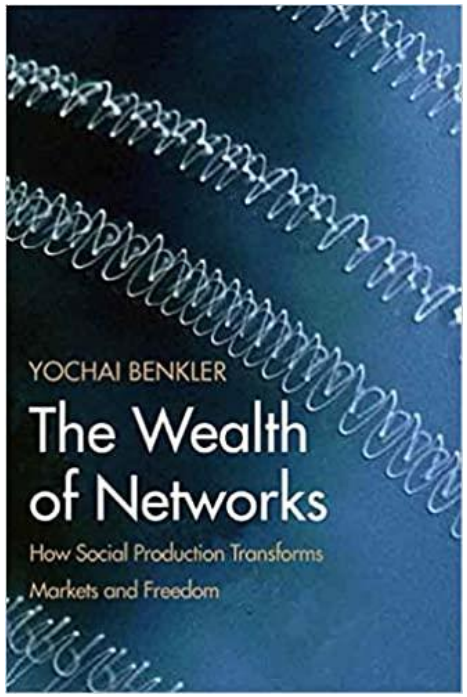
An open system provides maximum flexibility as a system evolves over time.

Augmenting or expanding a system should be easy and manageable within an existing environment without extra disruption or expense.



What is open source?

The quintessential instance of **commons-based peer production.** An approach to software development that is based on shared effort on a non-proprietary model. It depends on many individuals contributing to a common project, with a variety of motivations.



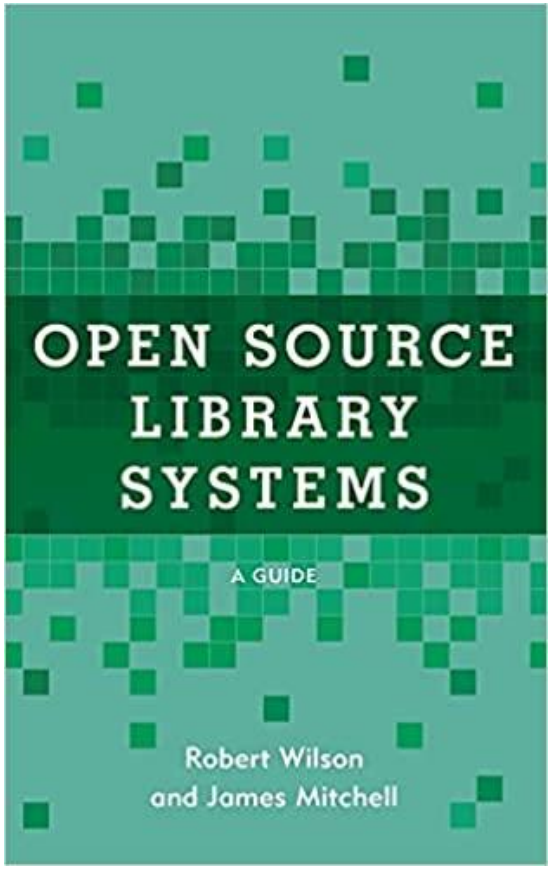
The Wealth of Networks: How Social Production Transforms Markets and Freedom. Yochai Benkler. Yale University Press. 2006.. ISBN-13. 978-0300125771 http://www.benkler.org/Benkler_Wealth_Of_Networks.pdf

Open source licensing

Software whose licenses permit individuals or groups to copy, inspect, use, and improve upon it.

Primarily, this distinction draws a clear line between OSS [Open Source Software] and proprietary software.

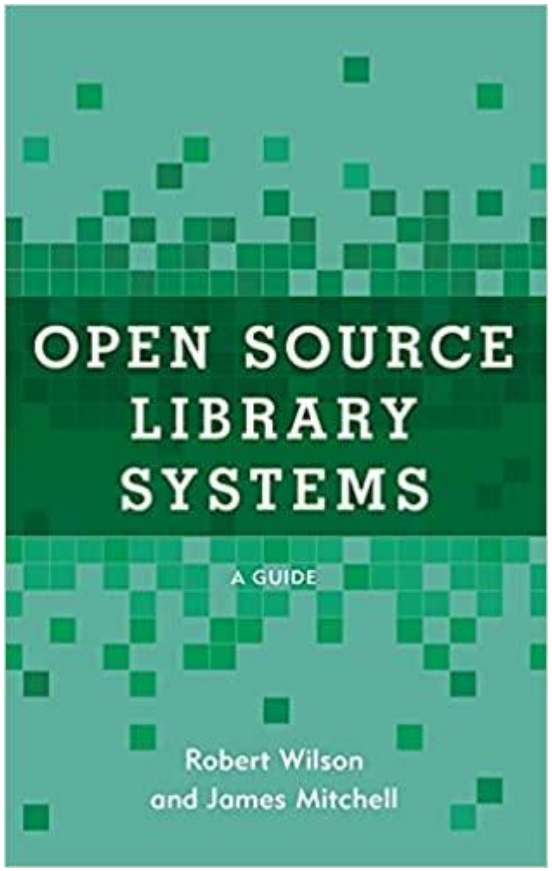
Developers of proprietary software do not share the source for the software



Open source licensing

While there are over 200 types of open-source software licences the two main categories that apply to library systems:

1. Permissive licences: These minimise restrictions on reuse.
2. Copyleft licences: These ‘prevent a person from modifying, changing and distributing copyleft software under different licensing terms than the original licence



The ‘copyleft’ concept

GNU’s General Public License (GPL). It is a specific implementation of the copyleft concept. **Any software based on any GPL component must be released as open source**.

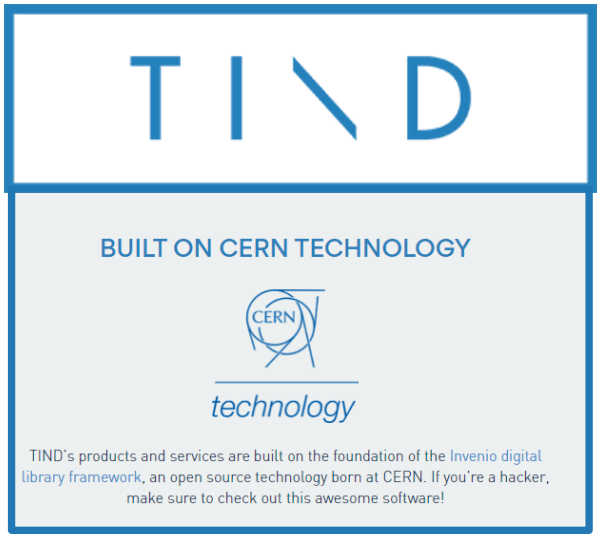
The Koha library system is licensed under a GPL

The most popular copyleft open source licenses, in order of restrictiveness, are AGPL, GPL, LGPL, EPL, and Mozilla

Permissive open source licensing

The most popular permissive open source licenses are: Apache, MIT, BSD and Unlicense.

The proprietary TIND library system uses elements from the open-source, MIT-licensed Invenio system.



The FOLIO library system is licensed under a permissive (Apache 2.0) licence and, like Invenio, might at some stage form the core of a proprietary offering.

Open source is mainstream and commercial

Most of the big name technology companies such as Google, Microsoft and Amazon are heavily invested in open source

Amazon, Microsoft, and Google are all ramping up open source work

By Mayank Sharma published July 20, 2021

Data shows interesting correlation between the contributions of tech giants

(Image credit: Shutterstock)

Amazon, Microsoft, and Google are all ramping up open source work. By Mayank Sharma. TechRadar. 20 July 2021
https://www.techradar.com/news/amazon-microsoft-and-google-are-all-ramping-up-open-source-work

Open source – pervasive and commercial

Open source has now become pervasive, especially since the shift to cloud and mobile computing – technologies powered to a large extent by open source.

Along the way it has lost some of its commons-based peer production aura. Many open-source initiatives, including library systems, are now largely developed and funded by commercial companies.

"The fact that EBSCO is investing millions in the creation of an open source platform lends further credence to the importance and validity of open source technologies in the library market."

How libraries are adopting open source. By Don Watkins. Opensource.com 12 April 2019. https://opensource.com/article/19/4/software-libraries

Libraries' engagement with open source systems – some examples

Reading Lists

2002 Loughborough Online Reading List System (LORLS)

Archives

2007 AtoM

2014 ArchivesSpace versions 1.0.7 and 1.0.7.1 released

Repositories

In 2008 Jisc Repository Support Project (RSP) to support and develop the UK network of institutional repositories (IRs). It ran until 2013

(Digital) archive preservation

2009 Archivematica

Discovery solutions

2009 VuFind

2010 Blacklight

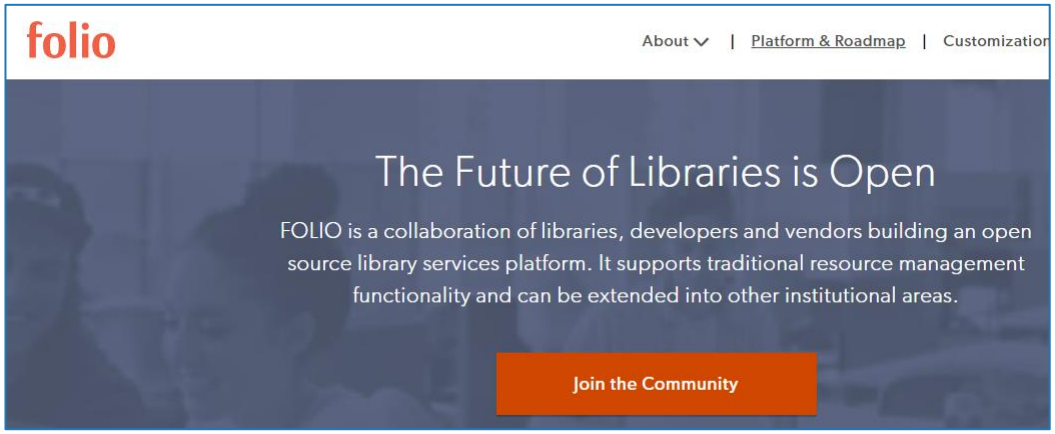
2019 Aspen

Resource Sharing

2021 Project ReShare

Open source *library management systems* for HE

From a higher education (HE) perspective the most significant **library management systems** (LMS/ILS) are Koha and FOLIO



CORAL

ERM -electronic resource management (esp. for Koha libraries)

Open source *library management systems* for HE

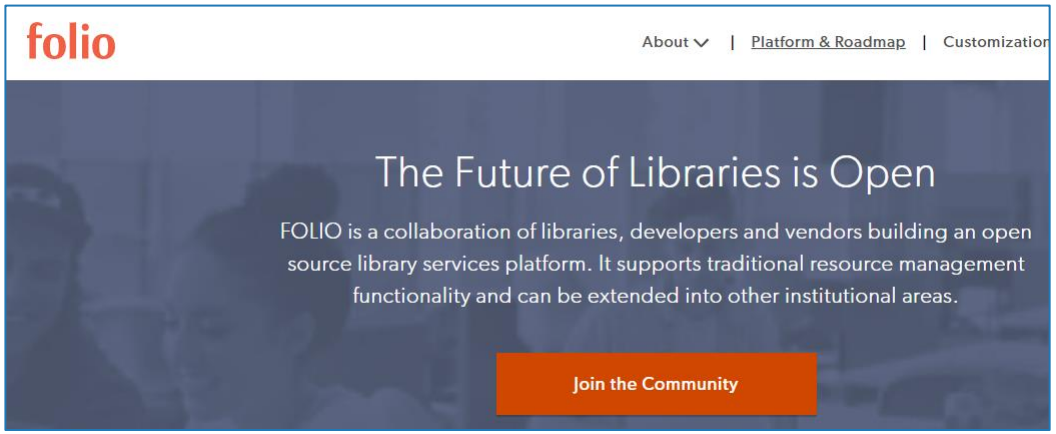
Koha

Although Koha has been around since 1999/2000, it did not figure in the higher education library landscape in the UK or US until a decade later. This was largely because 'it lacked basic requirements (such as support for MARC records and record transfer through Z39.50), and it had only minimal capabilities for acquisitions, serials management, and other areas of functionality'.

These gaps were filled and, in the UK, Staffordshire University was the first to implement it in 2011

Koha was a web-based system from the start, which gave it a competitive edge over some other ILSs

Open source *library management systems* for HE



FOLIO

The alpha version of the FOLIO ('Future of Libraries Is Open') library system was released in January 2018. It claims to move 'beyond the traditional library management system to a new paradigm, where apps are built on an open platform'. It is framed as a fundamentally new type of library platform, with 'open source software, modular components, and a microservices-based technical infrastructure'. **It can be considered the first open source library services platform (LSP).**

The Open Library Foundation, an independent not-for-profit organisation, hosts the project and the software company Index Data developed the initial platform. The initiative received, and continues to receive, 'significant financial contributions' from for-profit EBSCO.

Open source: Development

A shared community-development model means that, unlike a proprietary solution, vendors, companies and other **open-source solution providers don't need to carry the full development costs of a library system**. They can target their development resources on specific needs and/or focus on non-software development areas such as customer support.

Open source: The value of service providers

The availability of commercial service providers has been the key driver in the adoption of open-source library systems in HE.

They can respond to a formal Invitation-To-Tender (ITT) or Request-for-Proposal (RFP), which has been the way most university library systems are procured. In the US and Canada, almost all implementations of integrated library systems based on open-source software rely on commercial services from a vendor.

PTFS Europe

EBSCO

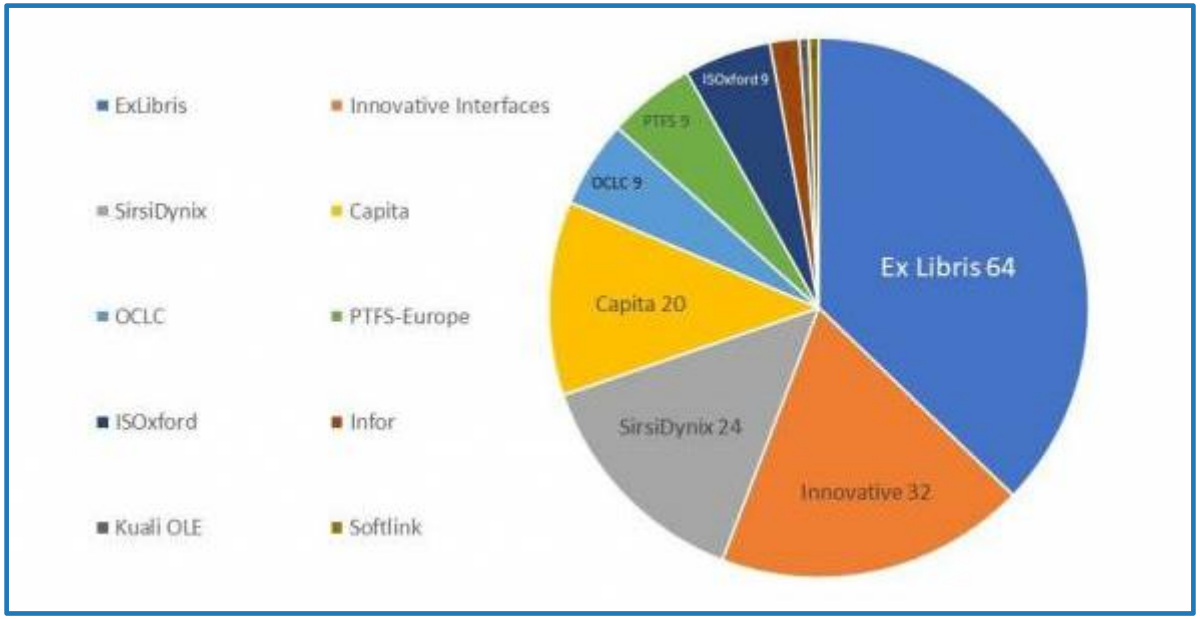
ByWater SOLUTIONS

BibLibre

services & logiciels libres pour votre bibliothèque

Market share 2020 (UK HE)

While proprietary software remains the dominant approach, a growing percentage of libraries are adopting open source library systems. By 2020, open source accounted for over 7% of academic library implementations in the US. In the UK, PTFS-Europe supported Koha implementations represent around 5% of the HE library systems market.



Library System market overview. Higher Education Library Technology [website] https://helibtech.com/library_systems_market_overview

Drivers for change: moving beyond the LMS/ILS

The conventional (ILS/LMS) library system did not successfully develop to encompass the management and workflows of new areas of library activity. It remained print-focused in an era when most library spending went on electronic resources.

Libraries need technology solutions that go way beyond the core functionality of an ILS to enable their growing supporting role for teaching and learning and especially research. **It's now more appropriate to think of a library technology 'ecosystem.'** This may include a reading list solution, a system for archives, a digital preservation solution, repositories of various kinds and a research management system. There may also be a library-run university press.

The ILS/LMS or even the LSP is increasingly marginalised in this environment, and its value is diminished

Drivers for change: The rise of platforms

The Rise Of Business Software Platforms

"With the increase in cloud adoption in the past 10 years, a new breed of software solutions has emerged. These solutions can be thought of as business software platforms that are designed around a subset of business processes that are closely related — even if the initial design did not intend to be for more than a single-purpose solution. These solutions don't cover every business process in the enterprise by design, but they are designed with an awareness of other upstream and downstream business processes. This makes **business software platforms much more easily extensible** into other areas."

The Rise And Evolution Of Business Software Platforms Mohamad Zahreddine. Forbes. 8 November 2019
https://www.forbes.com/sites/forbestechcouncil/2019/11/08/the-rise-and-evolution-of-business-software-platforms/

Software *product vs platform*

“A software product is a set of tools from one company that comes in one package. Everything contained within that package is designed to work together, but it can be challenging to add on new tools that didn't originally come in the package.

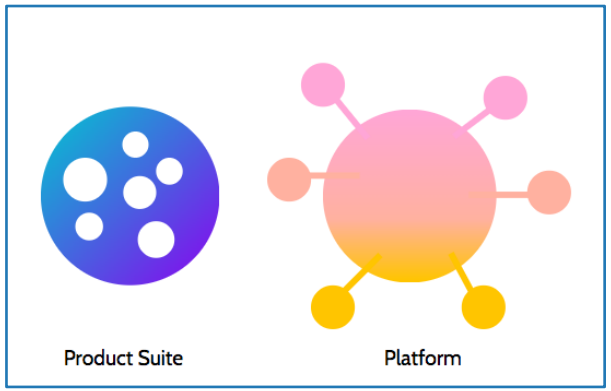
For example, if you wanted to add a new help desk tool that works directly with your existing CRM, you'd need to build an integration that can connect the new tool to your existing product suite. The help desk tool wasn't originally designed to work with your product suite, but an integration can effectively enable them to pass information back and forth.

One-off integrations are useful if most of the tools you need already exist within your product suite, but they can get complicated fast and become difficult to troubleshoot. As your business grows, your needs will inevitably change, and the tools that worked for you originally might not be enough to keep you up and running. You'll need to supplement your original product suite with more outside tools -- and that means more integrations.”

What Is a Software Platform & How Is It Different From a Product? Emilie Nøss Wangen. Hubspot [Blog]. Originally published Jun 26, 2019. Updated January 26 2021. https://blog.hubspot.com/marketing/software-platform

Software *product vs platform*

A platform offers a different, more straightforward approach to managing your growing business. Instead of purchasing a box of tools, a platform is more like an electrical outlet with the potential to easily plug in as many tools as you need. Products require integrations (sometimes custom, complex ones) to connect different tools, but platforms are designed from the start to help different tools work together and share information more easily.



Not only do platforms make data more readily available …..but they also enable non-developers to create and maintain advanced, interconnected ecosystems of tools.

What Is a Software Platform & How Is It Different From a Product? Emilie Nøss Wangen. Hubspot [Blog]. Originally published Jun 26, 2019. Updated January 26 2021. https://blog.hubspot.com/marketing/software-platform

The rise of platforms

The underlying technology of platforms differs radically from older systems. Within each multi-tenant environment, there is only **one copy of the application software, one operating system and one database supporting multiple organisations on a single bank of servers.** The vendor only has to deploy, develop, maintain and upgrade one copy of the software.

In the UK this approach enabled Ex Libris to increase its market share from 23% in 2008 to over 37% in 2020. The WMS cloud-based platform enabled OCLC to make a breakthrough into the UK HE market and establish a small but significant and growing market share.

Non-platform approaches are losing HE market share

Vendors, such as SirsiDynix, Innovative Interfaces and, in the UK, Capita (now Education Software Solutions), have continued to lose HE market share.

In the UK, for example, Capita/ESS's market share halved from 2008 to 2020, and SirsiDynix dropped from over 22% to 14% in the same period.

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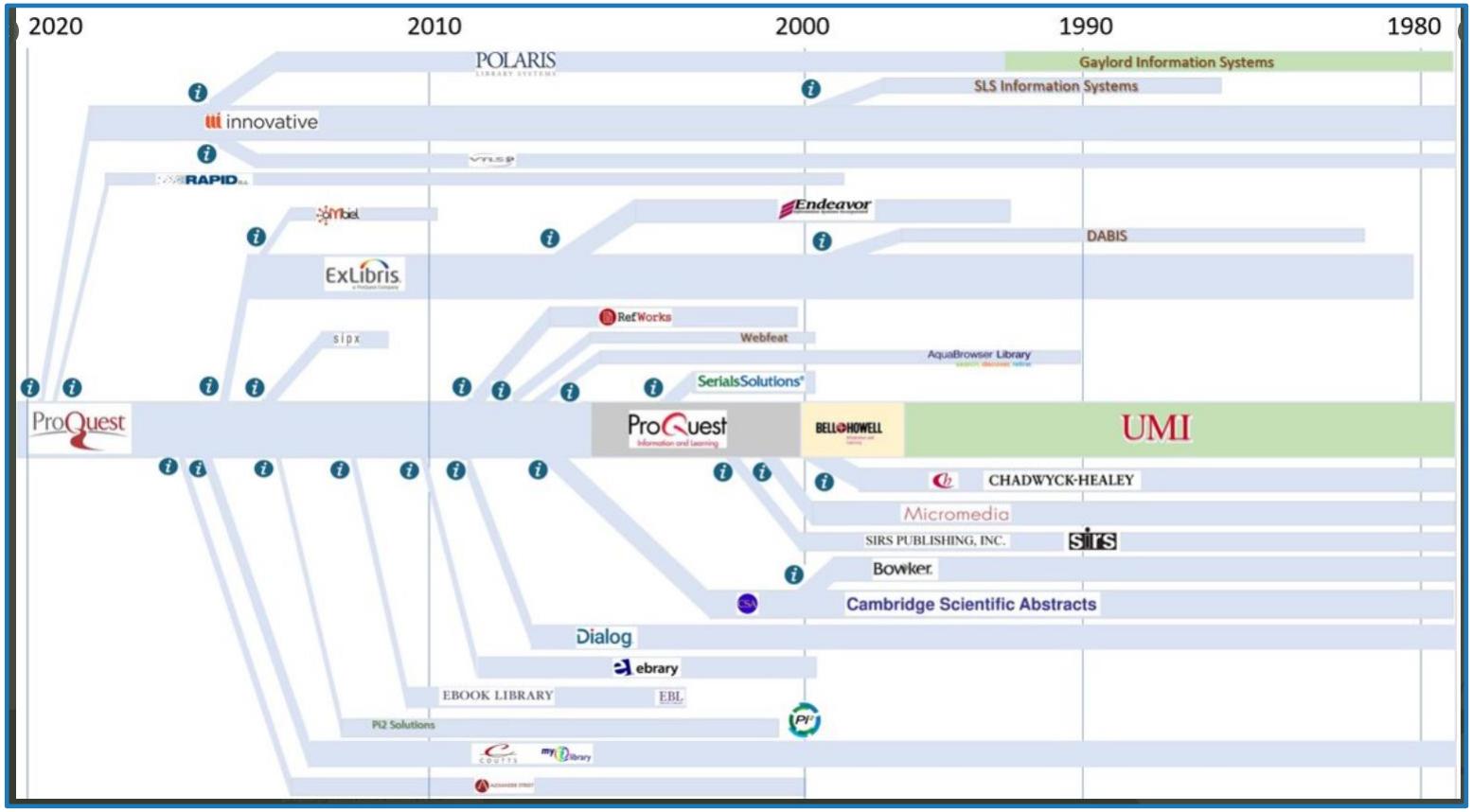
A consolidating market

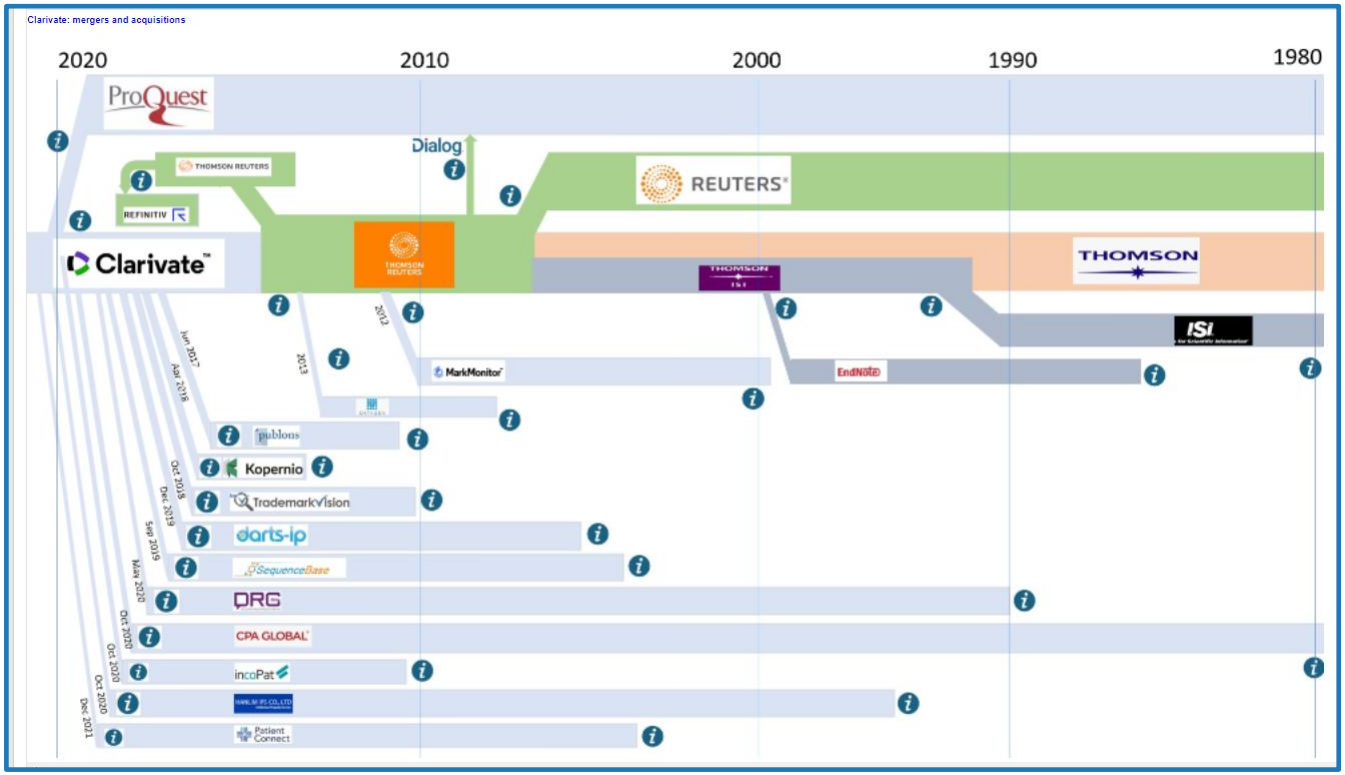
Ex Libris, Innovative Interfaces are acquired by ProQuest



Marshall Breeding https://librarytechnology.org/mergers/

A consolidating market

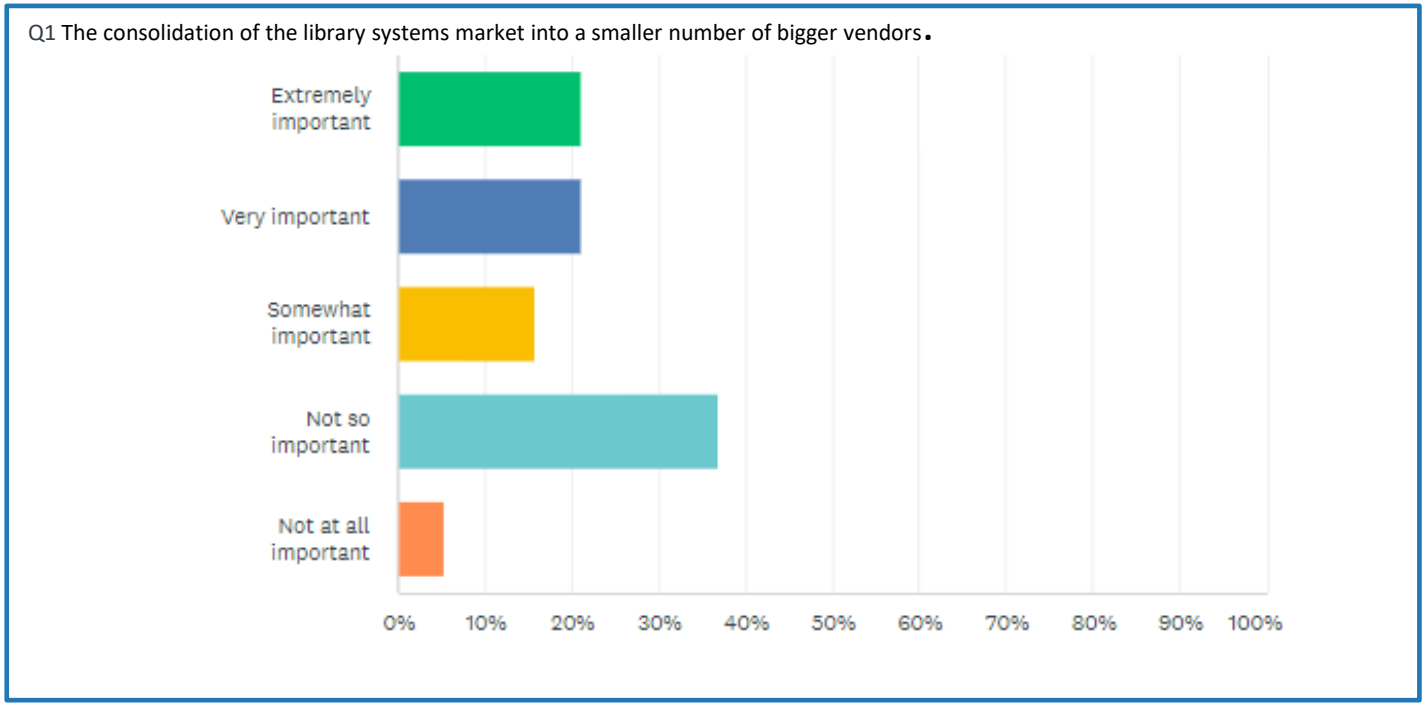
ProQuest is acquired by Clarivate



Marshall Breeding https://librarytechnology.org/mergers//

A consolidating market

Ken Chad Consulting Survey 2021
"Indicate what you see as the key directions/trends for library technology now and for the next 5 years"



A consolidating market

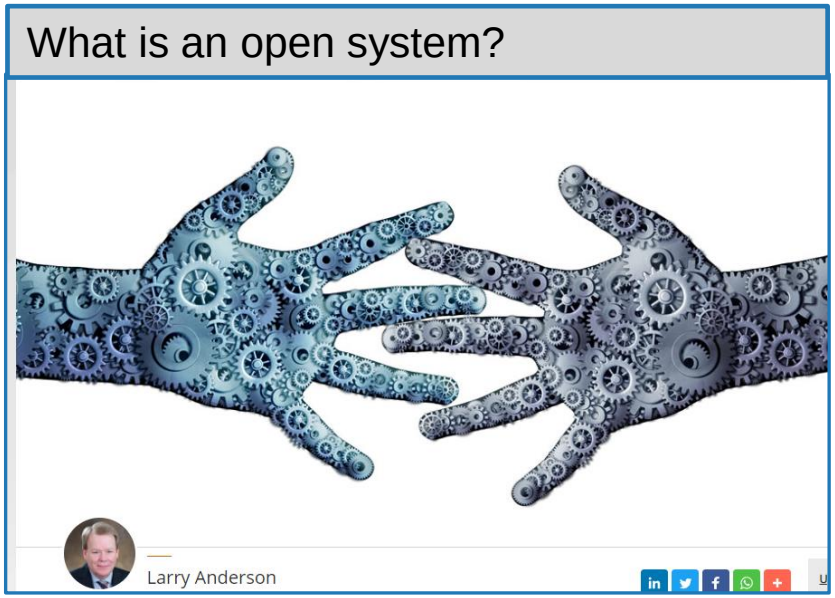
Some librarians are concerned by what they see as a lack of choice.

Marshall Breeding suggests that competition remains, “despite consolidation and the products implemented in the Association of Research Libraries reveal a more competitive environment now than there was a decade ago”.

Open or closed ?

it’s wrong-headed to consider whether a system is fully open or closed. In reality it’s a spectrum:

> One might think that a system is either open or closed, but in fact, **there are many degrees of openness,** reflected by how many third party technologies are integrated and how easy the integrations are [.....] Open may not be completely open, and closed may not be completely closed.



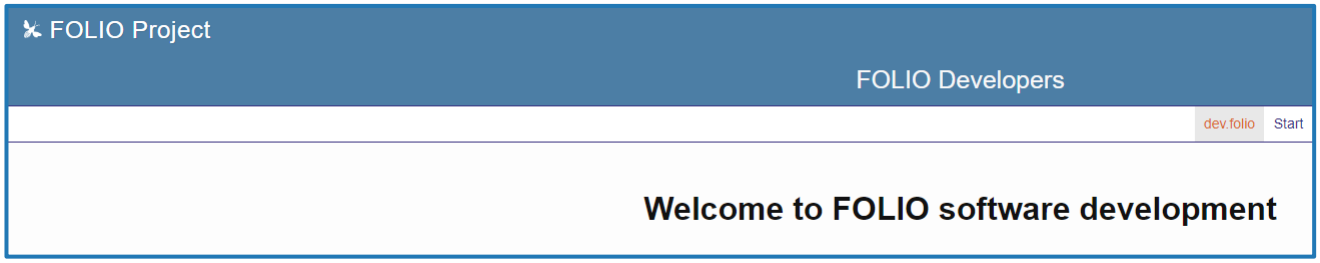
What is an open system? Larry Anderson. SourceSecurity.com. N.D https://www.sourcesecurity.com/insights/open-system-interoperability-rises-security-trend-co-8173-ga-sb.20393.html

Open source and proprietary systems working together

Proprietary library system platforms make use of open-source software inside their solutions and enable third parties (using proprietary or open-source approaches) to integrate to add functionality and reuse data. For example, OCLC publishes a range of its APIs on its developer network. Ex Libris has a Developer Network, a presence on the GitHub and an 'App Center' for publishing and searching for apps which extend the Ex Libris platform.

OCLC Developer Network. OCLC APIs
https://www.oclc.org/developer/api/oclc-apis.en.html
Ex Libris Developer Network. https://developers.exlibrisgroup.com /

Open source and proprietary systems working together



FOLIO takes a similar approach, engaging both open-source, community and commercial software developers. For example, FOLIO libraries can use the open-source VuFind discovery solution developed by Villanova University in the US or, if they need a central index of electronic content (typically journal articles), the proprietary Ebsco Discovery Service (EDS).

Folio Developers. https://dev.folio.org/

The need for scale

Platforms work best at a large scale. A global platform can extend a partner's reach into new sectors and geographies. The more customers a platform has, the more likely open APIs and data standards will be developed. Furthermore, data at scale delivers huge insights, and technologies such as artificial intelligence need considerable investment and work best with large volumes of data. **Building these platforms requires a level of investment that only the largest, well-funded vendors or open-source communities can deliver.**

The need for scale

Forbes

a company may spend $10 million to build/assemble a platform and spend a quarter of a million to maintain it the next year. But that next year also will require the cost of building a second iteration of the platform, and that will constantly continue. This is because **platforms change the way a company competes in the marketplace and how it operates**. A platform continually requires more investment because companies seek to lean into those platforms, add to them, and evolve them. They need to move them forward because they are integral to how companies operate.

Understanding Digital Platform Costs. Peter Bendor-Samuel. Forbes 30 Nov 2021.
https://www.forbes.com/sites/peterbendorsamuel/2021/11/30/understanding-digital-platform-costs/

Making ‘open’ work: interoperability - a challenge for the library sector

Whether based on open source or proprietary software, the elements of the ecosystem need to interoperate.

Achieving better integration means supporting and developing APIs and also enabling open data. Some progress has been made by vendors and through organisations such as NISO and BIC but Todd Carpenter of NISO remarks, **‘fundamental advances in management of library information [….] have been slow to advance**

Making ‘open’ work: interoperability - a challenge for the library sector

Baltimore, MD - October 31, 2019 -
The National Information Standards Organization (NISO) seeks comments on a new draft Recommended Practice pertaining to the modernization of library-vendor technical interoperability using RESTful web service application programming interfaces (APIs) and standard mobile application intent calls.

“There may be more work ahead,” says Nettie Lagace, Associate Executive Director of NISO, “but by **implementing standards using RESTful Web services APIs, vendors will be able to abandon some of the bulky toolsets of the past, and thereby allow libraries more flexibility** in meeting local needs.”

https://www.niso.org/press-releases/2019/10/niso-releases-draft-fasten-recommended-practice-public-comment

Interoperability and open data initiatives - slow progress and the graveyard?

DLF ILS Discovery Interface Task Group (ILS-DI)
Technical Recommendation

An API for effective interoperation between integrated library systems and external discovery applications

Revision 1.1

December 8, 2008

Biblios.net - the world's largest database of freely-licensed library records

Search Results for
‡biblios.net
Not Found

R & D project

Plan M: streamlining the bibliographic metadata marketplace

Engaging with stakeholders throughout the supply chain to streamline workflows, enhance usability and facilitate collaboration through leadership and a vision for change.

BIC Brunch:
What is the Library Communications Framework?

29th April 2021 - 12 noon (BST)

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Conclusion

Libraries choose their technology solutions based on a combination of technical, cultural, and organizational factors, and most take a pragmatic business view. Solutions are almost always going to be some mix of open-source and proprietary technologies. All are based on a unified, integrated core, even though components of the core may differ.

With a more dedicated focus on interoperability the next decade promises to be deliver an innovative, and competitive technology ecosystem for libraries.

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