Strategies for Collaboration:
Opportunities and Challenges to Build the Future We Need

September 15, 2022

INTRODUCTION

The ICOLC Strategies for Open Collaboration in Library Consortia Task Force was initially formed to develop strategies for consortia and libraries to interact with vendors and the open source community to address pricing, standards/interoperability, and access challenges. We were charged with developing a report that would:

- Outline what libraries should do differently in their ongoing relationships with vendors and the open source community.
- Suggest alternatives to the typical library/vendor model, especially open source/community-owned efforts that address the needs outlined in the report.
- Articulate a broad vision for how these efforts tie together and provide a framework for libraries to support these projects.

While this report is aimed primarily at library consortia, the strategies described will also be useful for individual libraries. While at times uncomfortable, this inward look and self-assessment, along with a radical shift in how libraries allocate resources[1], will yield the bracing and clear-eyed vision needed to sustain a strong future for libraries. While vendor-created solutions will always be an important option for libraries, we also need solutions created and managed by libraries. By taking more agency, we can move away from the status quo in which we are beholden to vendors' business interests, priorities, and pricing, to create alternatives in the marketplace where library values and needs are prioritized.

We are at a pivotal time for libraries, which face a rapidly changing knowledge marketplace and often with shrinking budgets. Typically, groups of libraries form consortia to act at scale, increase capacity, lower costs, and help mitigate risk across libraries. Collaborations between consortia can provide the scale, resources, and expertise to make coordinated, strategic, and cost-effective investments in community resources while supporting equity and inclusion. Projects such as the Big Ten Academic Alliance (BTAA) are already taking unprecedented steps to collaborate, “supported by interoperable services and systems that rest on a foundation of shared infrastructure[2].” The “Library First Principles” identified by BTAA call for libraries to become the “long-term guardian and preservers of research products” and support “egalitarian access to the tools of knowledge creation.” BTAA’s call for the effective in-housing of library systems through collaboratively owned and supported infrastructure is pivotal in building a sustainable future for libraries.

A Call To Action

For libraries to accomplish their missions, serve their users, and effectively steward limited resources, libraries of all types must be able to select the services, platforms, and technology providers that match organizational values and meet both long and short-term needs. To that end, we argue that libraries must empower themselves by reestablishing agency and reasserting control over the technical infrastructure critical to libraries' success.

We recommend a three-pronged approach that combines both local and larger-scale actions. While we've positioned the most significant point of departure from "business as usual" first, we’ve provided multiple suggestions at differing levels of technical complexity and financial commitment so that any library can find an entry point for contributing to the overall goal of revitalizing our future. Each of the strategies summarized here is discussed later in this document.

[1] See https://scholarworks.iupui.edu/handle/1805/14063. We discuss this fully later in the report.
[2] https://www.cni.org/topics/economic-models/the-big-collection-building-a-knowledge-commons-for-the-big-ten

Underpinning all these strategies is a recognition that libraries – even the largest, best-funded ones – must collaborate to accomplish their missions. Conversely, even the smallest, poorly-funded libraries can be valued contributors to these efforts. Consortia can play a unique role in this undertaking, working with all their libraries – however big or small, no matter their funding – to identify strategies that work for their libraries and bring them together to regain collective agency, power, and control.

STRATEGY ONE – Radically Rethink Our Operations to Build the Future We Need:

- Assess and audit our operations for areas that are out-of-sync with organizational values and short- and long-term goals.
- Build in-house, sustainable, collaborative capacity based on identified short- and long-term needs.
- Join collaborative efforts that are funding alternative solutions.
- Reallocate a portion of budgets to support alternative solutions.
- Ask library groups to dedicate a part of their membership fees to support alternative solutions.
- When contracting with vendors that support open source, ensure that they commit to support future development of the underlying system and contribute their developments back to the community.
- Participate in grants that are developing alternative solutions.
- Engage with the legislative process to advocate for additional support for libraries and alternative solutions.

STRATEGY TWO – Reframe Contracts for Proprietary Services:

- Ensure existing vendor contracts allow for robust collaboration opportunities within and outside their proprietary platforms.
- Include clear contractual language around data ownership that allows libraries to engage and interoperate with other systems and develop solutions that meet their long-term needs.
- Ensure pricing is clearly tied to standard library metrics with options to scale up or down.
- Include required standards and interoperability options with clear expectations for implementation and consequences for non-compliance.
- Require proprietary providers to implement open, vendor-neutral standards and interoperability protocols fully.
- Avoid non-disclosure agreements.
- Use collective purchasing power whenever possible.
- Make full use of existing contractual rights to work effectively on behalf of patrons and communities.

STRATEGY THREE – Design, Support, and Fund Alternative Solutions Now: ("Alternative solutions" include open source, collaborative, and community-driven initiatives.)

- Consider whether open source or community-driven initiatives can (or could one day) meet your needs, and support them with funds, expertise, development time, or other in-kind measures.
- Experiment with open or non-commercial systems to gain familiarity with them if the library or consortium is not ready to fully embrace open or non-commercial systems or if the systems themselves don't yet meet your needs.
- Adopt one component of a more comprehensive, modular solution that addresses a specific need well.
- Provide data or integrations to/with open source or community solutions as an interim step, even if not ready to move away from commercial systems entirely.

BACKGROUND

Before we address our specific recommendations on how to move forward, we'll provide some background for context. Much of the commentary in this section is drawn from the experience of members of the SOCLC Task Force and may be specific to the United States in some cases. While the members represent many different types, sizes, and geographic locations of libraries, we acknowledge that not every point will resonate with all libraries.

In the United States, funding is woefully inadequate across the library sector. The global Covid-19 pandemic has exposed everything that was not working well (or at all) but was papered over with good intentions. The blunt trauma of decades of disinvestment in the public sector, particularly in education, has left libraries lacking many of the core resources necessary to function effectively. While libraries can and should continue to advocate for additional funding, current political climates, an uncertain economy, the declining number of high school graduates across many regions, and the continuing fallout from the pandemic mean that increased funding is unlikely in most cases. Library workers dedicated to the profession of literacy and equal access to information are now called on to defend traditional principles with few resources to ward off assaults.

The mission of libraries has been devalued through disintermediation and political partisanship, the library workforce has been hollowed out, and professional managers struggle to maintain access to funding in the face of these challenges and competing claims. The bi-partisan support that sustained U.S. libraries for decades is no longer a given. While we need an influx of more public funding, we also need to examine our library operations holistically from the standpoint of sustainability to ensure our institutional relevance – or even our survival.

Although the examples above are specific to the United States, the Covid-19 pandemic has impacted libraries globally, and concerns of funding, personnel, and technological capacity will resonate with libraries around the world.

While the origins of many library services are collaborative and community-owned (e.g., bibliographic records created by the Library of Congress; and by librarians at institutions; and via state-funded efforts like the Western Library Network[3] before its acquisition by OCLC), for decades now, libraries have increasingly turned to proprietary solutions. This commercial approach predates the onset of the internet but was accelerated by that technology and by the desire to more effectively share solutions across the sector in an era that did not yet offer alternative models and community-owned solutions.

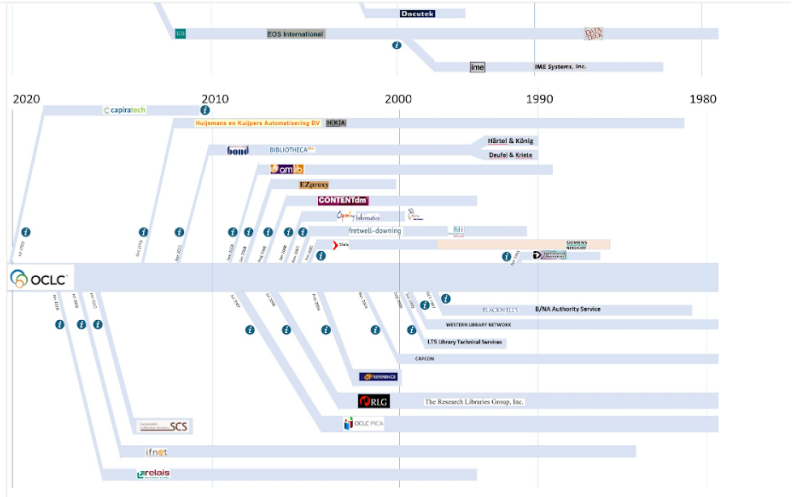
While libraries have always embraced the collaborative development of new tools, the explosive growth of the internet and related technologies resulted in libraries collectively turning that responsibility over to a new and growing industry of companies with expertise in delivering solutions for library needs. These solutions were largely proprietary, with library funds thus flowing into a corporate-controlled marketplace.

These trends are further exacerbated by a dwindling supply of library personnel and the professional expertise necessary to support library infrastructure in-house. Even the largest and most successful information technology companies struggle to hire and keep the technologists and software developers they need; libraries are disadvantaged in attracting and retaining individuals and software support from this same pool of talent. This perfect storm has led to a critical lack of capability and capacity and "learned helplessness" in the face of increasingly privatized information, the politicization of knowledge, and the commoditization of analytics and other services.

Consolidations and acquisitions can also contribute to a dwindling of options for libraries. Marshall Breeding's 2020 report, "*Consolidation of the Library Technology Industry,*[4]" provides a comprehensive overview of where things stood as of 2020. Breeding's site also includes a helpful "Guides[5]" section which demonstrates those mergers and acquisitions (a few examples are provided in Appendix A of this report)..

[3] https://www.sciencedirect.com/topics/social-sciences/information-library-networks
[4] https://librarytechnology.org/document/25696
[5] https://librarytechnology.org/guides/

For example, here is the graphic showing historical OCLC-related mergers and acquisitions (see full graphic and other examples here: https://librarytechnology.org/mergers/, or see an enlarged version in Appendix A of this report):



Another series of recent consolidations saw Ex Libris (provider of library management systems) purchase a major competitor (Innovative Interfaces, Inc.) before being purchased by a content provider (ProQuest) and then acquired by a major data analytics firm (Clarivate). As SPARC noted in its submission to the FTC, this level of concentration could push "control of the research ecosystem further toward the largest commercial players—and away from the best interests of the research community. The result will be fewer options—and ultimately, higher prices—for libraries."[6]

Mergers and acquisitions are not always bad and are not limited to the private sector. However, they can sometimes result in more limited options and can lock libraries into ever-increasing costs. The rising cost of accessing and curating digital knowledge, coupled with shrinking budgets, political and institutional challenges, and multiple staffing issues facing the profession, mean that ever-increasing system costs impose unsustainable burdens on many – if not all – libraries.

As market consolidation has taken place, libraries have few options for responding to the changing needs and expectations of end-users. Individual libraries, faced with the challenges above, may lack the resources to develop and sustain technological solutions in the face of a rapidly changing environment. At the same time, private sector solutions have become increasingly costly and marginal in their responsiveness to changing library needs. The recent mergers of library technology/systems vendors with content providers also impose risks of vertical integration and the creation of silos, raising concerns of preferential treatment, impediments to access, and diminution of choice.

While the situation facing many libraries is dire, there is hope for a better future, as evidenced by a resurgence of library-created solutions since the mid-2000s. Rather than indulging in adversarial behavior and "vendor bashing" – which achieves very little in reversing our position of weakness – we will provide some potential constructive strategies and paths forward for libraries. Some of these solutions will be highlighted in our recommendations for a path forward.

We recognize that we are building on the work of many others within the library community in making these recommendations, including the work of Gwen Evans and Roger Schonfeld in their 2018 report "It's Not What Libraries Hold; It's Who Libraries Serve: Seeking a User-Centered Future for Academic Libraries[7]."

> *Ultimately, our recommendations are clear. We are looking for a new kind of library system (or systems)—one that definitively places the user at the forefront, one that largely amplifies our evolving new library mission,*

[6] https://sparcopen.org/news/2021/sparc-statement-on-completion-of-clarivate-proquest-merger/
[7] https://doi.org/10.18665/sr.312608

and one that seamlessly works in concert with other systems in the academic enterprise digital ecosystems. We appreciate the radical nature of what we are seeking, and we expect it will likely require the creation of an entirely new technical architecture for the next generation of library systems. It is our belief that nothing less than this is needed in order to enable libraries to meet their expanded missions in a changing environment.

As we witness continued consolidation in the commercial ILS market, it is our hope that existing providers and open source initiatives will be prepared to make the investments necessary to achieve our vision.

For the remainder of this document, we will focus on what libraries can do to regain ownership of our tools and services and create a more competitive marketplace.

Solutions and Ownership

When we describe "*commercial*" or "*vendor*" solutions, we are referring to proprietary (usually closed) solutions created and managed by for-profit (and sometimes not-for-profit) organizations. We recognize differences in how those organizations are structured and governed, with varying degrees of library influence over the services provided. Vendor or commercial solutions are important options for libraries to have in meeting user needs. Libraries do not have the resources or expertise to provide every solution on their own, and vendors often bring important strengths and capacity that libraries require.

Open source solutions are those that anyone may use, adapt, modify and enhance. While these solutions are available and often "freely" licensed, they still carry the costs of implementation, development and maintenance. These solutions may be entirely self-hosted by a library or group of libraries or be provided by contracted service providers, which may be commercial or not-for-profit. Open source solutions present libraries with important opportunities to choose a service provider, not usually available with proprietary solutions, meaning that there is more opportunity for competition. Providers supporting open source systems can be a useful entry point for libraries that may not have the resources to do in-house development but still wish to move to an open source solution. It is critical to ensure that those vendors support the larger open source project community and contribute their work back to the original code base. Understanding these dynamics can be challenging, but this approach can benefit libraries by helping manage the transition to more and better open solutions without requiring the library to assume the full burden of in-house support, minimizing their risk, and spreading development and support costs across a larger community.

In addition, open source solutions are "community-owned" or licensed by a community with a direct stake in that solution's remaining open and available to others. The open-source model depends on the collaboration of implementers and contributors to sustain the effort and provides the opportunity to spread the costs of development and innovation guided by user needs. The wider the implementation of an open source technology, the more likely it will be sustained and enhanced over time. As the number of options for commercial or vendor solutions has decreased, we believe that an increase in open source or community-led solutions, created and managed by libraries, will result in a more competitive marketplace overall.

One important thing to note: we recognize that great strides have been made recently in areas such as Open Access publishing, Open Educational Resources, and Open Data. While libraries are indeed involved in and often spearhead these efforts institutionally, they are already well underway and benefit from the involvement of stakeholders outside the library community, so we will not focus on those initiatives in this report.

In the strategies below, we will focus on tools, approaches, and services specific to the technology infrastructure needed by libraries and consortia so that we can intentionally plan for a better, more sustainable future in which we recapture our expertise, our capital, and our agency.

STRATEGY ONE: Radically Rethink Our Operations to Build the Future We Need

Libraries must advocate, collaborate and communicate for the future we need – a future in which libraries have the resources and tools to support our patrons and organizational missions successfully. To attain this, we must first reflect deeply on the areas of our work that are, or will soon be, out of alignment with that future. We cannot continue operating with a status quo mentality and expect to achieve a different result. A paradigm shift is needed in how libraries allocate our increasingly limited funds. Our budgets are currently beholden to maintaining the status quo, usually with vendors whose pricing increases annually. Rather than continuing to fund proprietary development, we propose reallocating a portion of what we expend with those vendors for deliberate investment in library-created or community-owned solutions. Additionally, we must look for ways to build or rebuild in-house expertise to support these alternative solutions and collaborate with other libraries to do so. Richard Dunks of Invest in Open Infrastructure stated it well:

> *"Ideally, these efforts would catalyze a restructuring of the organization and a reorientation of the culture in a more fundamental way towards not only open tools but more open processes and ways of working. Ideally, the culture change we're seeking in advocating for open infrastructure is one in which people ask "Why wouldn't we use an open solution?" rather than "Why would we use an open solution?" This only comes about when the organization has largely bought into the potential of open tools and realized the benefits of open solutions on a smaller scale that they want to build on. This is a longer term strategy based on a more gradual shift in the organization but one that I believe is ultimately more sustainable over the long term[8]."*

Repurposing a portion of library budgets towards collaborative and open source solutions is not a new idea. In 2017, David Lewis (then Dean of the IUPUI Library) proposed in his paper "*The 2.5% Commitment*[9]" that "academic libraries should commit 2.5% of their total budgets to organizations and projects that contribute to the common digital infrastructure need[ed] to support the open scholarly commons." In that paper, Lewis argues:

> *"While we always feel financially stretched, the truth is academic libraries have considerable resources at their disposal. According to the National Center for Educational Statistics, in 2012, the latest year for which statistics have been published, 3,793 academic libraries in the United States spent $2,790,039,494 on information resources and had total expenditures of $7,008,113,939. In 2014/15, the 124 members of the Association of Research Libraries had total expenditures $4,605,470,905, with $1,619,589,599 spent on library materials. There is money. The critical question is: Are we in the academic library community prepared to reallocate enough of it to accomplish what needs to be done?"*

Libraries of all types and the consortia that serve them share the same concerns about rising vendor costs consuming an ever-increasing portion of organizational budgets. The specifics of how much a library can or should commit will vary. Lewis initially proposed a commitment of 2.5% of the overall library budget. We recognize that for many libraries, personnel, facilities, and other fixed costs consume most of their budgets, leaving little room for reinvestment. However, even a relatively small reallocation of what we currently spend with commercial vendors would make a huge impact. Based on the 2012 numbers provided above, if all academic libraries reallocated 2.5% of current vendor spend to alternative solutions, that could be $175 million annually – and that's just academic library data from ten years ago.

Some consortia may have more ability than individual libraries to reallocate a level of funds that can scale the impact. While the numbers in the paragraph above may seem large, they will have less impact if they are not coordinated. Consortia, or affiliated groups of libraries, are uniquely positioned to bring together a pool of libraries and/or funding that can provide a larger impact on targeted initiatives. We challenge consortia especially to consider where they are spending their money, what is truly a fixed cost, and where monies could be repurposed or pooled more strategically to disrupt the status quo and give libraries more agency. For example, transitioning a portion of your e-resource spend to support open access journal or ebook content; or investing in a central developer position to investigate and

[8] Stated in email conversation with the authors of this report, 8/27/2022
[9] https://scholarworks.iupui.edu/handle/1805/14063

support potential solutions on behalf of all libraries in the consortium. From a software perspective, consortia may find value in experimenting with an open source solution alongside a current proprietary solution – for example, standing up an open source standalone ERM system like CORAL or FOLIO ERM. This can allow the consortium to evaluate the solution against their libraries' needs while also providing support to the open source community. Even if not ready to adopt, tapping a developer or librarian who wishes to learn some new skills to support an open source initiative can be helpful. Libraries may also consider contributing the time of subject matter, user experience, pedagogical, and business modeling experts as another way to contribute and build community ownership. It would also be especially impactful for consortia to join forces with like-minded groups on new grant proposals. Major funders are recognizing the ability of open source projects to impact key initiatives on equity of access and provide new information services.

More recently, Lewis published a document titled "*Getting Your Library to Open: Four Steps and Five Measures*[10]," which outlines concrete steps libraries can take to move towards an open future and reclaim local control of their budgets and services. In Step One, he recommends that libraries save money by moving from "just in case" collection development to "just-in-time" purchasing. In Step Two, he suggests that libraries repurpose the money saved in Step One by expanding local capacity, creating open repositories and library journal publishing programs, to open up access to our services and collections. In Step Three, he recommends that large academic libraries pursue transformative open access journal agreements, especially if they will save money in the long term.

In Step Four ("Fund Common Resources") he recommends that libraries "spend less money purchasing content and instead fund national or international digital resources and infrastructure." This shift in funding may require shifts in library procurement rules (e.g., rethinking RFP requirements to consider open source solutions; exploring models to fund open source development pre-adoption), so in the short term we recommend working within existing organizations. Library consortia and professional associations often collect membership fees that could be adjusted and/or partially reallocated to support community-driven initiatives; or these groups could serve as a centralized conduit through which funds could be collected on behalf of particular efforts[11].

Additionally, consortia or groups of consortia could band together to tackle and coordinate large-scale infrastructure and services. In their article, "*Collaborating Across Consortial Boundaries*[12]", the authors, also members of this task force, show how leveraging the expertise of two or more consortia enables significant technology and service development.

> *"By pooling our expertise, financial resources, and diversity in number and size of libraries, we believe we are better positioned to develop a robust and sustainable solution for maximum impact and benefit to the community."*

By working together, consortia can create greater impact for each individual library's reallocated staff and resources, enacting real strategic change and supporting the ongoing transfer of funding to community-owned initiatives. Groups of consortia may also have greater visibility and impact enabling the group to attract investment from institutions and grant foundations. These groups have the potential to benefit large numbers of libraries. For example, the Hyku for Consortia[13] institutional repository project represents a large number of various sized academic libraries and leverages the variety of experience and expertise in addition to aggregated funding to support the infrastructure and service.

Why Library Created Solutions Are Important

We recognize that commercial or vendor-provided solutions have often been the easiest and most cost-effective solution for individual libraries to implement. Public, school, and smaller academic libraries may not feel they have the

[10] https://commonplace.knowledgefutures.org/pub/sg67g2up/release/1
[11] NOTE: This SOCLC task force is already in conversations with the ICOLC Coordinating Committee about what that role might look like for ICOLC.
[12] Morris, Jill and Leonard, Kirsten (2020) "Collaborating Across Consortial Boundaries," Collaborative Librarianship: Vol. 11 : Iss. 4 , Article 4. Available at: https://digitalcommons.du.edu/collaborativelibrarianship/vol11/iss4/4
[13] https://www.hykuforconsortia.org/

resources to undertake new initiatives. While larger academic libraries may have more resources, it can be especially difficult to implement open source or locally-controlled solutions when the institution as a whole, and the overall research lifecycle, is moving towards outsourced solutions. But as Roger Schonfeld writes in his 2018 issue brief "*Big Deal: Should Universities Outsource More Core Research Infrastructure?*[14]"

> *While outsourcing is not uniformly good or bad, services with a principally academic market seem to be especially susceptible to monopoly or oligopoly dynamics among commercial providers.*

The solution that is the easiest and most cost-effective today may become the only solution, and less cost-effective, down the road. Libraries need to confront the tension between the short-term convenience of a commercial solution and the longer-term investment in open source and community driven solutions to make a longer-term decision on what best meets their needs – not only financially, but philosophically and by leveraging groups of libraries.

Libraries should reestablish a professional investment in technology. This requires a shift in mind-set, where the "wait and see" approach of library led projects within the open source arena should be instead fed and funded within the public funding model, otherwise we will perpetually delay our own empowerment. As stated earlier in this report, libraries should be asking "why not open source?" as a primary question early in the procurement process. If it's not feasible to develop in-house resources, partnering with a vendor who supports open source (so long as that vendor has a commitment to the long-term success of the overall open source community) may be a good option. Or work with groups of libraries, consortia, or collaborations between consortia to build investment in skills.

Decoupling proprietary services within our library services platforms is dependent on the quality of the solutions we create on our own and release to all libraries to use, build upon, and improve. Our strategy should be to build and support library service platforms that are inherently modular, reusable, easily maintainable and/or extensible, built on technology standards using open APIs and secure connections to protect underlying data (both from a security and quality perspective). The protection of data is supported by the modular approach, breaking out of the containment and capture of library data within the proprietary, corporate model of "sole source solutions" where library data is trapped and inextricably embedded within these proprietary frameworks.

Luckily we do not need to do this individually. There are several organizations or initiatives underway that could be leveraged to help support a large-scale reimaging of library funding or that could provide a useful model for future development.

The Open Library Foundation (OLF) - https://openlibraryfoundation.org/about/

> *"The Open Library Foundation was created in 2016 as an unbiased, independent not-for-profit organization to ensure the availability, accessibility and sustainability of open source and open access projects for and by libraries. The Foundation seeks to enable and support collaboration among librarians, technologists, designers, service providers and vendors to share expertise and resources and to create innovative new software and resources that support libraries. We believe that open discourse in a diverse and inclusive community will better identify and characterize challenges and opportunities, and enable paradigm-shifting solutions."*

Invest in Open Infrastructure (IOI) (https://investinopen.org/about/)

> *Invest in Open Infrastructure is an initiative dedicated to improving funding and resourcing for open technologies and systems supporting research and scholarship. We do this by shedding light on challenges, conducting research, and working with decision-makers to enact change.*
> *Invest in Open Infrastructure (IOI) was founded on two core premises:*
> - *Open, community-owned infrastructure is necessary for research to thrive; and,*

[14] https://doi.org/10.18665/sr.306032

- *The way we fund and resource open projects we rely on is insufficient, and working against our aims to build a healthy, collaborative ecosystem.*

We strive through our work to shed light on the challenges and ultimately, improve funding and resourcing for the open infrastructure that research relies on.

There are also national (and international) efforts to create next-generation tools that rely on linked data, BIBFRAME, or RDA/RDF approaches:

LD4P (Linked Data For Production) https://wiki.lyrasis.org/display/LD4P2/LD4P2+Project+Background+and+Goals

A collaborative project among four institutions (Cornell, Harvard, Stanford, and the University of Iowa School of Library and Information Science) and the Library of Congress and the Program for Cooperative Cataloging (PCC), this phase of LD4P will have seven goals:

- *the creation of a continuously fed pool of linked data expressed in BIBFRAME from a core group of academic libraries*
- *development of a cloud-based sandbox editing environment in support of an expanded cohort of libraries to create and reuse linked data*
- *the development of policies, techniques and workflows for the automated enhancement of MARC data with identifiers to make its conversion to linked data as clean as possible*
- *the development of policies, techniques, and workflows for the creation and reuse of linked data and its supporting identifiers as libraries' core metadata*
- *better integration of library metadata and identifiers with the Web through collaboration with Wikidata*
- *the enhancement of a widely-adopted library discovery environment (Blacklight) with linked-data based discovery techniques*
- *the orchestration of continued community collaboration through the development of an organizational framework called LD4, ensuring continued exchange of ideas and techniques across a distributed developing community.*

Opportunities for Grants

We propose that libraries support open investment through enhanced participation in grant projects developing alternative solutions, or consider applying for their own grants to kickstart new solutions. Many of the projects outlined in Strategy Three are grant funded. They often reach out to the community for letters of support or other indications of commitment as they apply for, renew, or continue their grant funding. It's worth noting that while these grants allow for early stage development of a solution, they will often not provide the long-term support required for ongoing success. Sustainability is a core problem that grants alone cannot address, hence the need to build in-house support, expertise, and ongoing effective collaborative relationships. The expertise required to create sustainable open source solutions, vibrant open source communities that support the adoption and implementation of these tools, and collaborative business models is just as necessary as the technical expertise required to develop the tools themselves.

Open Source Software Grants like IMLS Digital Initiatives facilitate open research, helping develop digital technologies like open source software and open science, open scholarship, and open data. IMLS supports grants that build the technology used for research and scholarly communications.

On a smaller scale, the LYRASIS Catalyst Fund supports new ideas and innovative projects proposed by LYRASIS members. They especially value projects that support cross-institutional collaboration; diversity, equity, inclusion and accessibility; open source, open access, open sharing of results, and open infrastructure; and community-driven projects and projects having community impact." The funding amount varies yearly, but the typical award is around $25,000.

The Equinox Open Source Grant (Equinox Open Source Products) provides implementation, training, hosting, and support services for the Koha ILS, an open source integrated library system used by libraries worldwide. The grant is provided for an initial term of three years and can be renewed indefinitely as long as the recipient continues to qualify for the grant.

Library groups and consortia are often in a better position to apply for grants than individual libraries, so this is another area for libraries to work through consortia and membership/professional organizations to build the future we need. Consider joining an existing grant-funded project, such as these three projects:

- In partnership with several library consortia, the King County Public Library System was awarded an IMLS grant in 2012 to work on the Evergreen open ILS under the project title "Empowered by Open Source." The project's goal was to produce a feature-rich, open source integrated library system, free for any library to use and to expand the core group of early adopters of the Evergreen open ILS.[15]

- Open Bibliographic Data Management Planning Project. This PALNI project, funded by ARPA/IMLS, plans to identify ways of expanding current infrastructure to support open bibliographic data management tools while enhancing financial sustainability, access to information, and supporting mission impact. Information on how to participate by sharing needs and specifications or providing feedback on pilot projects will be posted to the project site.

- Hyku for Consortia. This project is funded by an IMLS grant to support reducing the cost of using Samvera-based open source software to provide institutional repository hosting and library services. The project is run by two consortia (PALNI and PALCI) collaborating to share costs and expertise. Four additional consortia are participating in identifying improvements to the software and support model and learning how to extend services to more libraries. Consortia or a group of libraries can follow the project, participate in the Hyku or Samvera communities, download the software, and share their experience using the software.

While we work towards a paradigm shift to fund systemic efforts, libraries and consortia should consider joining or funding existing cooperative efforts to develop alternative solutions. We have provided several examples in Strategy Three, many of which offer a vendor-supported option in addition to pure open source or self-hosting. However, it's vital that, when contracting with vendors that support open source, libraries ensure that the underlying open source product benefits from their library's adoption. Libraries may negotiate with these vendors to formalize channels for resourcing the underlying software and the community required to sustain it. Ensure that any work your vendor does to support the open source product is returned to the core base code. Forking an open source product, while perhaps tempting in the short term, may harm the ability to develop a robust community-owned product in the long run. Libraries seeking open source vendors should prefer those who have demonstrated commitments to their software's community and should be active participants in code contribution or other resources. Ultimately, service providers and open source developers should be evaluated for alignment with libraries' values and missions or risk facing the same potential drawbacks as any other proprietary choice.

Cooperation, collaboration, and communication are key strategies to this paradigm shift, even within existing vendor relationships. That communication must go from consortial leadership to library funders, legislative bodies, and library members. It is important that, where permitted, libraries and consortia engage with legislative processes to advocate for additional support for libraries and alternative solutions. But consortia must also share these strategies with individual libraries and administrators as they are making system choices that could inadvertently prevent collaboration. Ensure that your organization, member libraries, and board understand and are empowered to advocate for needed changes. Articulate value statements emphasizing why these issues are important, communicate those values to vendors and communities and then spend funds according to those values. Library leaders have a

[15] "Empowered by Open Source" final report submitted to IMLS: https://galecia.com/sites/default/files/FINAL%20PERFORMANCE%20REPORT%20SUBMITTED%20TO%20IMLS.pdf

critical role to play in setting the expectations of their staff and communities, especially where changes represent new types of investments and disruptions in normal day-to-day operations.

Play to Your Consortium's Strengths

It would be impossible for every type of library consortium to agree on a single solution to solve a decades-old problem. We recommend that each group assess its risk tolerance and ability to contribute to developing free and open source solutions for libraries. Roger Schonfeld provides a deep dive into library collaboration in his 2019 issue brief "*Restructuring Library Collaboration: Strategy, Membership, Governance*[16]," including a four-step process that libraries can use to determine what collaboration options are right for them:

1. ***Mission:*** *What are the missions and objectives we hope to achieve together? What is our strategic role given the changes in the ecosystem and competitive landscape? Are our objectives sufficiently ambitious yet ultimately realistic? Have our objectives expanded or changed? Do we unnecessarily duplicate the work of another community organization or initiative?*
2. ***Membership:*** *Do we have the right partners/members to accomplish our objectives? Are they sufficiently aligned around the core set of objectives? Can they generate the resources necessary to achieve the mission?*
3. ***Governance:*** *Is our governance model well adapted to the strategic role we envision for ourselves? If a membership organization, is our membership conterminous with those organizations that align with our strategic role? Who makes the core strategic and policy decisions? Is there an elected board of library directors or provosts — or a model more inclusive of other kinds of employees? How is the work of the board assessed? Does the executive director or other staff leader report to this board or an individual as part of a state system or other larger enterprise? How is the executive director employed, on a renewable term, or do they serve at will? How are they reviewed? Is there a regular risk assessment process for the organization?*
4. ***Funding:*** *Are we able to generate the resources necessary not only to accomplish our regular operations but also to reinvest in our organization? Does our business model match revenue with the value generated, or have mismatches emerged?*

Consider funding research and development as a percentage of your organization's budget or reserves for several open source library projects of strategic value to your organization. Encourage your staff and the staff at consortial libraries to participate in developing open source and community-driven solutions. Even if you do not have staff with technical development expertise, participation of your staff at the coordination level can be invaluable to software developers that require a feedback loop of user experience within the design of solutions and software.

Most importantly, start now – even if the solution is not yet ready for you to use. The "wait until it is ready" approach of library organizations will continually put library open-source projects at a disadvantage, as traditional procurement processes such as Requests for Proposals (RFPs) are (currently) often designed to favor existing corporate solutions. This disadvantage results in a perpetual cycle of public funds being used to support vendor solutions, with little incentive for for-profit businesses to meet our needs for low-cost, collaborative, and future-facing tools that enable us to reduce costs together.

Earlier, we pointed out that consortia may have more discretion than individual libraries in reallocating funds and resources and that consortial-level efforts can have a multiplied positive impact on change. That impact is even more pronounced when multiple consortia work together (see examples in Strategy Three of this report). Collaboration and coordination take time and effort, and libraries and consortia are spread thin. Still, we must choose our priorities strategically and work with others to invest resources in those priorities.

Libraries and consortia will need patience and increased risk tolerance as we seek to build the future we need. We must exert our agency and make short- and long-term decisions with the value of this ownership in mind.

[16] https://doi.org/10.18665/sr.311147

STRATEGY TWO: Reframe Contracts for Proprietary Services

While open source and community-driven efforts should be supported and encouraged, commercial vendors will remain an integral part of the landscape. Indeed, some vendors are service providers that *support* open source services. However, some industry players use license agreements to preserve or advance their position in the marketplace, thereby restricting libraries' rights and ability to innovate and collaborate. Such restrictive behavior is out of alignment with libraries' needs and public, not-for-profit/educational missions. To change this dynamic, libraries must rework and reframe contracts to improve our ability to collaborate. Existing vendor contracts must ensure the fullest collaboration opportunities. Libraries and consortia already have significant leverage in negotiating, but only if we are willing to exercise it. Sometimes that may mean collaborating with others to gain an overall long-term benefit, even if that means sacrificing short-term interests; for example, making the difficult choice to walk away from a vendor deal if it does not support the long-term best interests of all libraries involved. Below are some recommendations around pricing, data ownership, interoperability and standards to consider when agreeing upon contract terms and setting expectations. We've also provided some draft contractual terms.

Pricing:

Libraries should prioritize solutions that reduce overall costs. In many cases, open source or community efforts may be viable long-term solutions – one recent study found savings of over 80% for free and open source solutions compared to commercial platforms[17]. For commercial platforms, insist on transparency into the underlying costs to support the licensed services. Ask vendors to articulate the components of their support costs and what causes increases or decreases. To what extent is pricing based on what the market will bear?

Build transparent, predictable pricing structures into contracts explicitly tied to standard library metrics. While there is no single pricing model that works best for every library and licensed product or service, there are characteristics that successful pricing models share. Those characteristics include:

- Reduces overall library costs where practicable
- Ties pricing to actual vendor costs to provide the service
- Includes predictable and sustainable cost increases
- Can be adjusted up or down as the relative value for libraries changes
- Provides mechanisms for unbundling and retaining cost savings if products are bundled for cost savings
- Provides alternative methods of participation so that libraries that cannot afford base-level pricing can continue to bring value to the cooperative for services that benefit from library cooperation
- Allows libraries to phase in significant price changes over time

Any pricing model should be tied to standard library metrics that are clearly delineated in the contract, that are transparent and measurable, and that can be adjusted (up or down) as the library/consortia's needs change. Depending on the product, service, and library community involved, metrics might include some or all of the following:

- Number of libraries/sites
- Number of actual users
- FTE
- Number of records
- Usage or cost per usage
- Library budget
- Library classification
- Tiers of participation based on a combination of factors above

It's important to negotiate not only which factors will cause pricing to increase, but also those that could/should trigger a decrease in costs and how and when increases/decreases will be assessed.

[17] https://www.sciencedirect.com/science/article/pii/S2468067220300481

Finally, consider subscribing to single products rather than bundling them. If bundled pricing provides the best deal, clearly outline the parameters and ramifications of separating the bundled products in the contract.

Data Ownership and Quality:

We recommend that library vendor contracts be designed to free library data for use within a distributed library services platform framework, where multiple solutions can compete, and the reliance on a single source solution decreases. In this section, we'll provide examples mostly around bibliographic metadata. Still, the same concepts apply to any data or metadata created or generated by libraries (e.g., usage data/analytics, patron activity data, knowledge base information, OA analytics, etc.)

First, ensure that any contracts for services surrounding your data define data as broadly as possible and give you the right to share and reuse data. For example:

- *Customer Data contained or shared within [PRODUCT/SERVICE], and Data generated by the Customer's usage of [PRODUCT/SERVICE], will be owned by the customer. Customer may download Data, share Data with anyone at any time, and re-use Data in any manner they see fit.*
- *Unless otherwise attributed, any Data supplied by Customer to [VENDOR], as defined in the Base Agreement, shall be available for use and reuse under the Creative Commons CC0 "No Rights Reserved" license.*
- *Customer Data accessed by any third party that the Customer contracts to provide services (a "Third-Party Service Provider") shall at all times be governed by the [Creative Commons CC0 or Open Data Commons Attribution License (the "ODC-BY License")].*

If there are exceptions to the free use and sharing of data, explicitly articulate and agree on what those exceptions are in any agreements.

Include a CC0 or CC-BY statement in the data (including MARC records) you create. Here's an example from the University of Florida:

> *588 _ _ $a This bibliographic record is available under the Creative Commons CC0 "No Rights Reserved" license. The University of Florida Libraries, as creator of this bibliographic record, has waived all rights to it worldwide under copyright law, including all related and neighboring rights, to the extent allowed by law.*

A CC0 (no rights reserved)[18] license "enables scientists, educators, artists and other creators and owners of copyright- or database-protected content to waive those interests in their works and thereby place them as completely as possible in the public domain, so that others may freely build upon, enhance and reuse the works for any purposes without restriction under copyright or database law." CC-BY "allows reusers to distribute, remix, adapt, and build upon the material in any medium or format, so long as attribution is given to the creator," and CC-BY-SA includes the same rights, but also adds "If you remix, adapt, or build upon the material, you must license the modified material under identical terms."[19] Check with your legal counsel, or use the "Creative Commons Chooser[20]" to determine which approach works best for you.

Discuss the expectations for and value of high-quality metadata with vendors. Many vendors do not hear about the value of metadata from librarians or quality concerns and may not see the benefit of improving it. Accurate and detailed metadata directly from the vendors means less local effort is needed for clean-up or correction and better access and discoverability for library users, increasing usage of library-provided content. When possible, verify the quality of vendor metadata and provide feedback, as well as why it is important to have vendor-provided high-quality reusable metadata from the vendor, benefitting libraries that receive the vendor's metadata and the vendor. Ensure

[18] https://creativecommons.org/share-your-work/public-domain/cc0/
[19] https://creativecommons.org/about/cclicenses/
[20] https://creativecommons.org/choose/

that your expectations for sharing or re-using any vendor-supplied metadata are agreed to upfront and that the agreement does not restrict usage, aggregation, analysis, sharing of data or holdings, and other current and future library and library collaboration use cases.

Interoperability and Standards:

The best way to ensure that you're licensing a solution that will interoperate with other solutions and conform to necessary standards is to build that understanding into your signed contract. We've already discussed the need to ensure that all data entered by libraries or created as a result of libraries' use of the solution is owned by and reusable by the libraries themselves and provided some draft contractual language (see the previous section).

If there are particular standards that you expect the solution to conform to, spell those out in the contract, along with guidelines on who is responsible for performing that integration work, and specific consequences for non-conformance. For example:

> *"[VENDOR] confirms that the system conforms to the current version of the following standards: [INSERT STANDARDS HERE]. If Customer notifies [VENDOR] that the system is not in compliance with a named standard, [VENDOR] agrees to immediately initiate work to remedy the issue, and will communicate daily with the Customer on the status of those efforts. If not in conformance after 48 hours post-notification to [VENDOR], Customer will be credited for any additional days of non-conformance on their subsequent bill. Non-conformance that lasts longer than two weeks post-notification may be grounds for termination of contract and repayment to Customer of the portion of their contract fees from notification forward; and/or renegotiation of contract terms to address non-compliance."*

Likewise, if you require that the system interoperates with another system or service, explicitly state that requirement in the contract along with consequences for non-compliance. Some standards can be very complex and have various elements with which a vendor may or may not be compliant. For example, a vendor might be compliant with a particular interchange protocol for some services, but not all, and therefore can say it is compliant, without detailing all the ways it may not be. Therefore, it is important not only to be specific about the standards one wants to ensure compliance with, but it may also be important to explicitly detail conformance for what purpose and aim, to ensure that a vendor's application supports the expected functionality.

Some vendors will insist on using non-disclosure clauses (NDAs) when dealing with other third parties. That can make it difficult for libraries to monitor or evaluate the interoperability work and lead to finger-pointing between vendors and other third parties with little recourse for libraries. We suggest that libraries explicitly address this in contracts. For example:

- *[VENDOR] must obtain Customer's signed acknowledgment that Customer has been provided with and had a chance to review and consider for at least ten (10) days a complete copy of all terms and conditions required of any Third-Party Service Provider who will have access to Shared Data.*
- *If Customer objects to any term being required of a Third-Party Service Provider as inconsistent with the requirements of the Base Contract or this Amendment, [VENDOR] shall participate in a good-faith negotiation to cure the inconsistency within thirty days of being notified by the Customer. Taking priority in any such negotiation shall be Customer's standards for data sharing, innovation, and intellectual property.*
- *Because it would be contrary to the mission of Customer to enable the use of its information in a way that impedes innovation or hampers research, in no event shall [VENDOR] use information or data obtained as a result of the services provided per the Base Contract and this Amendment to limit or impede the ability of any other party to provide similar services in the marketplace.*
- *Nothing in this Amendment is intended to limit any obligation by Customer, [VENDOR], or a Third-Party Provider to safeguard private information from disclosure as required by law or the ethics of the American Library Association, including but not limited to the privacy and security of personally identifiable library records of library users, security measures, and financial records.*

- *[VENDOR] shall include all of Customer's Third-Party Service Providers on an annually disclosed compilation listing all of the third-party service providers whose institutions agree to and request such disclosure and inclusion; such list shall be compiled and released by [VENDOR] every [ANNUAL DATE].*

Additionally, libraries themselves should be very wary of signing Non-Disclosure Agreements (NDAs) or agreeing to other confidentiality terms. If it is absolutely necessary, spell out exactly what is included in the NDA, and agree that anything not explicitly mentioned therein is not covered by that NDA. Consider putting a time limit on the NDA or requiring reaffirmation annually.

And finally, if your consortia or institution has legal counsel:

1. Meet with them as often as possible to ensure they know your library or organization's need to prioritize information access, interoperability, and innovation--and that you expect their review or drafting of contracts to support those values.

2. If your legal counsel is a generalist that doesn't focus on IP and information access issues, send them articles that clearly outline why libraries must advocate for these priorities. Connecting with a lawyer that is an expert on these issues (as a collaborator or consultant) can help the conversation with the generalist go more smoothly.

3. In advance of contract reviews and renewals (in other words, well before a deadline), ask to meet with the legal counsel to discuss the evolving priorities for library contracts. With enough lead time, counsel can understand their client's needs and strategize with them to get what they need in a contract, amendment, or RFP.

While not all in-house or external counsel have the time (or budget) for extensive meetings or preparation, building this understanding with the attorney will help them be effective in reframing existing contracts and negotiating the terms you need in the future.

If you don't have legal counsel, or even if you do, it's a good idea to partner with other libraries, library law experts, and/or consortia to work on these issues from a legal/contractual standpoint to the extent that agreement terms allow it.

STRATEGY THREE: Design, Support, and Fund Alternative Solutions Now

Despite a history of collaboration, sharing, and community-driven efforts, libraries have too often ceded control of their underlying services to commercial vendors with proprietary or closed systems. Even non-profit organizations originally established to serve libraries at low-cost can transition to pricing that is more in line with vendors or be acquired by corporate entities (e.g., OCLC, Digital Commons, certain society presses, EZProxy). Libraries should consider supporting efforts that are actively working to counter this trend to prioritize meeting their missions.

A famous quote (variously attributed to Peter Drucker, Alan Kay, Abraham Lincoln, and others) says that the best way to predict the future is to create it. If we as libraries want more options than vendors currently offer – different, better, cheaper, more collaborative options – we will have to create them.

Libraries of all types would be best served with access to a variety of modular and interoperable services as a suite of library solutions. This variety will provide libraries with the flexibility required to undo the intertwined dependence on corporate, proprietary software and services upon which the neoliberal library model has allowed public funds to flow unabated to the private corporate sector. However, we recognize a tension between the convenience of implementing a "one-stop" vendor-provided solution and the complexity of implementing a modularized solution. Modularity can work against service agility/innovation and internal seamlessness. Libraries will make local decisions that best meet their needs, consider these solutions on a case-by-case basis and how ongoing investment or collaboration could change the evaluation. Even if a commercial solution best meets a library's needs right now, consider how to protect options for sharing data, collaboration, and interoperability across systems and hedge against unwarranted price increases (see Strategy Two).

We'll begin with a case study in library management systems and then describe some alternative solutions – open source, collaborative, or community-based initiatives that currently exist or are under development. We offer specific suggestions on how to get involved and encourage library consortia and individual libraries to evaluate their needs in the short and long term and identify opportunities to join in these efforts.

Of course, there is also much work being done around Open Access, OER, and open data generally, but in this document, we have focused on the following library-specific areas:

- **Library Management Systems / Integrated Library Services Platforms**
- **Resource Sharing / Interlibrary Loan**
- **Cataloging / Bibliographic Utilities**
- **Collection Analysis / Shared Print Programs**
- **Discovery / OPAC Interfaces**
- **Institutional Repositories**
- **Electronic Resource Management (ERM) Tools**

Libraries should ask, "why not open source?" as they consider whether these or other open source or community-driven initiatives can meet their needs and whether they could provide support to get them over the finish line. While each initiative is different and has unique needs, in general, "support" will take the form of either funds, development time, or other in-kind measures. For each initiative, we've tried to provide some examples and guidance on how you may wish to engage. Even if your library system is not ready to fully embrace open or non-commercial systems, consider experimenting with them to gain familiarity with them and support their viability as alternatives to vendor-owned solutions. Given that many of these solutions rely on access to underlying metadata created by and for libraries, consider whether you can provide data or integrations to/with open source or community solutions as an interim step, even if you are not ready to move away from a closed proprietary system.

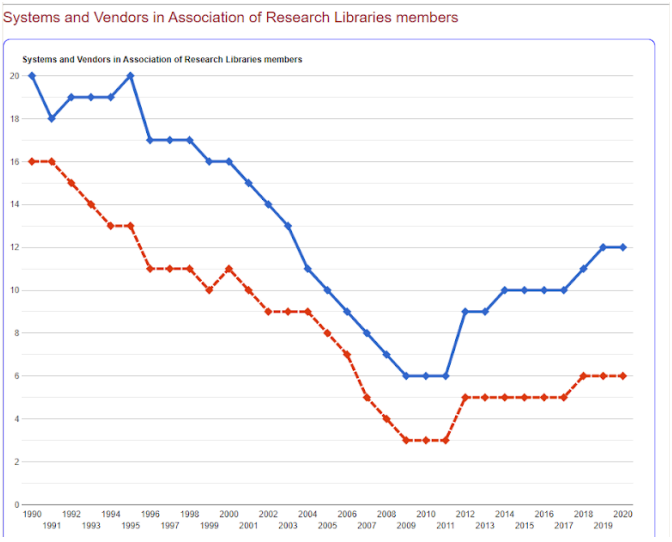
Library Management Systems / Integrated Library Services Platforms

Over a decade ago, Marshall Breeding wrote an article in the August 2011 Smart Libraries Newsletter titled "*Smarter Libraries through Technology: The Beginning of the End of the ILS in Academic Libraries*."[21] This article outlines the concept of a new genre of library software:

> *"The products are library-specific, they enable the library to perform its services, internally and externally through their built-in functionality, as well as exposing a platform of Web services and other APIs for interoperability and custom development. In a time when long-standing terms like "integrated library system," or OPAC bring along considerable negative baggage, we need new terms when we talk about what comes next."*

Ten years ago, vendors developing "next generation" library services platforms promised that these new systems would allow libraries to manage all types of resources – print, electronic, digital – in a comprehensive and unified way regardless of resource format and location, helping libraries to "break away from the traditional ILS models and build on the service-oriented architecture (SOA) model."[22] Vendors such as Ex Libris[23], SirsiDynix[24], OCLC[25], Innovative[26], and others moved swiftly to announce that they were releasing their own "NextGen" library services platform.

As we mentioned earlier, Marshall Breeding's 2020 report, "*Consolidation of the Library Technology Industry,*[27]" provides a comprehensive overview of how we got here and where things stood as of 2020. The "Guides"[28] section on Breeding's site includes several useful reports and graphical representations. For example, this graphic from the bottom of the "Competitive trends 1990-2020"[29] report demonstrates the decline in available systems (in blue) and vendors (in red) in Association of Research Libraries members over the past 30 years. Although the past ten years have shown an uptick in options, there are still 40% fewer system options and 60% fewer vendors than there were in 1990:



Ten years after the unveiling of "NextGen" systems, libraries continue to spend large sums of money with commercial vendors – sums which increase each year – to support systems that have not fully lived up to their "next generation"

[21] https://librarytechnology.org/document/16140/
[22] https://ejournals.bc.edu/index.php/ital/article/view/1914/pdf
[23] https://exlibrisgroup.com/press-release/ex-libris-announces-the-cloud-based-alma-library-management-service/
[24] https://librarytechnology.org/pr/17776
[25] https://americanlibrariesmagazine.org/2011/12/05/oclc-launches-new-worldshare-platform/
[26] https://www.ala.org/tools/article/ala-techsource/innovative-interfaces-launch-sierra-new-generation-automation-platform
[27] https://librarytechnology.org/document/25696
[28] https://librarytechnology.org/guides/
[29] https://librarytechnology.org/libraries/ilsdata/ils-data-report.pl?category=arl

promise. It's now clear that while these are robust and useful platforms, they have not transformed library workflows, saved libraries money, or resulted in increased collaboration or higher usage of library resources by patrons.

Rather than continuing to pour money into vendor-created solutions, we feel it would be more productive in the long term to support the development of an ensemble of services and software that can be stacked, linked, and modularized to meet library needs. Ideally, consortia and libraries can mix and match services from a variety of sources to best meet their local needs. A successful library services platform relies upon a framework of three important components:

- Standards (including data security)
- Interoperability
- Flexibility

A modular approach would decouple library services and instead allow libraries to choose a best-of-breed solution – whether vendor-provided or open source – that best meets the needs and characteristics of the organization. It is worth noting that flexibility can come at a cost (for both proprietary and open solutions) and that for many libraries, implementing a modular, customized solution may not be the best use of limited resources.

How to Engage, Generally:

- Review procurement processes to ensure they are open to and attractive to vendors supporting open source solutions.
- Regularly check in with open source solutions to see if they meet your needs.
- Stand up the solution in a sandbox and explore at your leisure.
- Join the development community for products in which you are interested. For example, FOLIO has a project wiki with information about the effort and suggestions for how to get involved.
- Consider adopting part of an open source solution if you're not ready to go all-in on an open source ILS. For example, the ERM functionality in FOLIO can be deployed as a standalone product; ReShare can be deployed parallel to other resource sharing solutions.

FOLIO: https://www.folio.org/ "The FOLIO project aims to facilitate a sustainable, community-driven collaboration creating a modern technology ecosystem that empowers libraries through open source applications to manage library resources and expand library value. FOLIO is hosted by the Open Library Foundation, an independent not-for-profit organization designed to ensure the availability, accessibility and sustainability of open source and open access projects for and by libraries." FOLIO is governed by the FOLIO SMLLC (Single Members Limited Liability Company), which resides within the Open Library Foundation. OLF was initially established by EBSCO Information Services and OLE, though neither organization has ongoing control. OLF also governs other software projects through SMLLC structures.

Evergreen: https://evergreen-ils.org/ "The Evergreen Project develops an open source ILS (integrated library system) used by more than 2,000 libraries around the world. The software, also called Evergreen, is used by libraries to provide their public catalog interface and manage back-of-house operations such as circulation (checkouts and check-ins), acquisition of library materials, and (particularly in the case of Evergreen) sharing resources among groups of libraries. The Evergreen Project was initiated by the Georgia Public Library System in 2006 to serve their need for a scalable catalog shared by (as of now) more than 275 public libraries in the state of Georgia. After Evergreen was released, it has since been adopted by a number of library consortia in the US and Canada as well as various individual libraries, and has started being adopted by libraries outside of North America."

Koha: https://koha-community.org/ "Koha is a fully featured, scalable library management system. Development is sponsored by libraries of varying types and sizes, volunteers, and support companies worldwide."

OPALS: https://opalsinfo.net/ "OPALS is a community of academic, education, special and public librarians that collaborate with experienced software engineers, automation consultants, support technicians and administrators to

develop and support this open source integrated library system. Our goal is to create sustainable, state-of-the-art technology that is easy to use, easy to implement and easy to afford."

Open ILS Initiative (proposed): Discussions are underway to see if there is sufficient interest to launch an initiative to create a framework for open integrated library systems. Potentially, a recommended practice might create visibility, clarity and conformance in the areas that will optimize open interoperability around the ILS/LSP and support the various parties involved. Such a project could outline areas of need, propose approaches to address specific roadblocks, identify critical applications that would have the greatest impact, and generate ways to uphold and create related transparency within our community. Organizers are interested in seeing it proceed within NISO and have submitted it as a proposed work item. For more information, contact Russell Palmer at GALILEO (Russell.Palmer@USG.edu).

Resource Sharing / Interlibrary Loan

Project ReShare: https://projectreshare.org An open source, community-driven project for resource sharing across and between library management systems. It's being designed as a highly-scalable solution that, long term, may serve as an alternative to OCLC interlibrary loan. "Project ReShare is modeling a mutual investment in an open collaboration intended to break down the barriers and silos associated with commercial platforms and replace them with an inclusive, community-owned ecosystem made up of libraries, consortia, software developers, and open source advocates."

How to Engage:

- Consider joining Project ReShare as a supporting member with direct financial or in-kind support.
- Consider using the software as a way to support cross-library resource sharing. In the short term, ReShare will be most useful when a consortium has members on disparate library platforms.
- As ReShare adds more members, consider using them as an option for ILL, even if you continue using OCLC or other ILL services. For libraries within consortia, especially those libraries with more limited ILL needs, ReShare alone may soon be able to meet their needs. When more libraries join and cross-consortial functionality is added, it will become even more robust.

Cross Share: While in the preliminary stages, several consortia have discussed options for using ISO 18626 as a middleware solution as a cross-consortia tool to request from each other without being on the same underlying ILS system. While this would not replace a full-blown ILL solution, it would eliminate the issue of silos that we are currently seeing. This would require development to seamlessly connect with ILS and ILL systems but would allow each library to continue to use their current, preferred system while communicating with other libraries on different systems. Contact Mark Sullivan (sullivm@geneseo.edu) if you are interested in this approach.

Evergreen Fulfillment: https://www.equinoxoli.org/products/fulfillment/ "Fulfillment is an open source interlibrary loan management system which leverages intuitive design and efficient workflows to maximize value and impact for library users. Fulfillment allows community members to have expanded access to resources across their state and outside their consortium. Fulfillment takes interlibrary loan to the next level with powerful analytics – removing the need for manual tracking and amplifying collections management efforts with clear reporting highlighting collections with the most demand. Fulfillment's features save staff time and work with any ILS. Fulfillment's robust suite of tools translates directly into better services for library communities." Contact Equinox at https://www.equinoxoli.org/connect/#sales if you are interested in learning more about the Fulfillment service.

Collaborative Collections Lifecycle Project (CCLP): https://sites.google.com/view/cclifecycleproject/
The CCLP project, organized in 2020, seeks to create a suite of best practices, improve standards, and prototype middleware infrastructure for the development and management of cooperative collections development. It aims to enable the efficient acquisition of collections and the sharing of those collections, along with related services, by developing a framework that libraries and consortia can use to share expertise, data, and collections to efficiently

steward limited resources in serving library patrons. Led by the National Information Standards Organization (NISO), the Partnership for Academic Library Collaboration & Innovation (PALCI), and Lehigh University Libraries, along with 27 other partner organizations, CCLP has been funded initially through a National Leadership Grant for Libraries by IMLS.

As part of the project, a NISO Working Group will develop a Recommended Practice (based on an open standards architecture) that will support the flow of data about distinct library collections. The Recommended Practice will document exchange protocols describing gathering, normalizing and exchanging holdings information, contractual information, retention obligations, and usage data. The model will also include aggregation of library staff and subject matter expertise, local/consortial/group-based insights, and publisher/marketplace information necessary to support collaborative decisions at both the local and cross-institutional levels.

Initially planned CCLP applications based on these recommendations may include: A) An aggregated shared index and knowledge base in which libraries/publishers can share data about their collections and expertise; B) A discovery mechanism for library staff to support searching and browsing for content, information, and human resources; C) A communication application that will support interactions across institutions; D) Data aggregation, visualization, and reporting; E) Negotiation and group purchasing decision support protocols. The group will also review existing standards and protocols for exchanging this information and, wherever possible, will adapt these extant best practices to this process or recommend additional changes to those existing specifications. Any prototype tools developed from this project will be made available open source to the community. For more information, visit the project website.

Cataloging / Bibliographic Utilities

How to Engage, Generally:

- Ensure that any contracts for services surrounding your data give you the right to share and reuse that data. For example:

  > *"Data contained within [product/service] or generated by customer's usage of [product/service] will be owned by the customer. Customer may download data, share with other vendors at any time, and re-use it in any manner they see fit."*

- If there are exceptions to the free use and sharing of data, explicitly agree upfront on what those exceptions are.
- Include a CC0 statement in any data (including MARC records) you create. Here's an example from the University of Florida:

  > *588 _ _ $a This bibliographic record is available under the Creative Commons CC0 "No Rights Reserved" license. The University of Florida Libraries, as creator of this bibliographic record, has waived all rights to it worldwide under copyright law, including all related and neighboring rights, to the extent allowed by law.*

- Share your data! Make your data available in as many places and through as many ways as possible. For example, open your consortial or library catalog to be searchable by other institutions; investigate options for Google to crawl and index your data; share data with new bibliographic utility services even if those are not your own primary bibliographic utility services.
- Explore other openly shared data sources available in bulk download and open web protocols.
- As new bibliographic utility services are developed, consider prototyping those services, running them side-by-side with traditional service(s) to see how closely they meet your needs.

Ex Libris MetaDoor: While it would be provided by a commercial entity, Ex Libris is positioning this as a free and open solution allowing libraries to share bibliographic records[30]. From an introductory Ex Libris email: "MetaDoor is Ex Libris' new open metadata platform which is designed to streamline and simplify library metadata workflows. MetaDoor will enable shared metadata for catalogers worldwide and ultimately move us to the Linked Data future that you expect." [31]

As of this writing, Clarivate/ProQuest/Ex Libris is currently prohibited from contacting OCLC customers about this initiative as a result of OCLC receiving a temporary injunction issued by an Ohio court. As a result, most engagement with this initiative will be on hold until that lawsuit is resolved. The concept of free and open access to bibliographic records is important. Other countries have made this metadata freely available, and U.S. libraries should likewise be exploring multiple pathways to share the fruits of their catalogers' labor. Remember that existing contracts may limit your ability to share records, so consider the strategies outlined in Strategy Two: "Data Ownership and Quality," before taking this step.

Other Bibliographic Utilities in Early Development:

- Open Bibliographic Data Management Planning Project. This PALNI project, funded by ARPA/IMLS and the Indiana State Library, plans to identify ways of leveraging the current infrastructure to support open bibliographic data management tools while enhancing financial sustainability, access to information, and mission impact. Information on how to participate by sharing needs and specifications or providing feedback on pilot projects will be posted to the project site.

- FOLIO Metadata Management (Cataloging) https://docs.folio.org/docs/metadata/
    - The Metadata Management discussion board has had some discussion about bibliographic utilities and how FOLIO libraries might share records https://discuss.folio.org/c/sigs/mm/12
    - Metadata Management Special Interest Group https://wiki.folio.org/display/MM
    - This SIG holds regular meetings, with recordings and minutes posted https://wiki.folio.org/display/MM/Meeting+Minutes+for+Metadata+Management
    - NOTE: You do not need to be a current user of FOLIO to participate in any FOLIO community
- Sinopia: https://sinopia.io/ https://github.com/LD4P/sinopia/wiki/Latest-Release,-What's-Next
    - Sinopia is a linked data creation environment developed by the Linked Data for Production: Pathway to Implementation (LD4P2) project, a collaboration among Cornell University, Harvard University, the Library of Congress, Stanford University, the School of Library and Information Science at the University of Iowa, and the Program for Cooperative Cataloging (PCC).
    - Sinopia User Group meetings are currently on hiatus, but their page has lots of information on how to get involved or learn more: https://wiki.lyrasis.org/display/LD4P2/Sinopia+User+Group
    - LD4P3 (underway through June 30, 2023) wiki has sections including
        - Sinopia/Folio integration (aka Sinolio): https://wiki.lyrasis.org/pages/viewpage.action?pageId=187176106
        - PCC Sinopia Cataloging Affinity Group

Approaches in Other Countries:

In the U.S. and Canada especially, OCLC has held a unique position of serving as the central bibliographic service. But as work in other countries shows, there is no requirement that only one vendor play that role. In the UK, Jisc had a transition agreement[32] with OCLC to provide records for sharing and reuse but does not use OCLC as the

[30] https://meli.org.il/wp-content/uploads/2021/12/Chani-Yehuda_Open-Metadata-Platform-MELI.pdf, https://www.youtube.com/watch?v=MTKQX4NYhsU
[31] https://lists.ctc.edu/pipermail/wactclc-alma_lists.ctc.edu/2022-March/010806.html
[32] https://www.jisc.ac.uk/news/jisc-and-oclc-agreement-to-provide-libraries-with-improved-access-to-cataloguing-services-and-records-23-feb-2022

underlying software for their national bibliographic knowledgebase.[33] However, that agreement was ended in June 2022[34] and "OCLC data will no longer be available in Jisc Library Hub Cataloguing, and the Library Hub team will no longer be able to facilitate data sharing into WorldCat as an extension of data ingest into the National Bibliographic Knowledgebase." However, Jisc will continue to facilitate their national database for discovery, leveraging library created records, but will not provide access to MARC format records from restricted use sources, including OCLC.

The National Library of Sweden's (KB) Libris system participates in WorldCat and uses WorldCat for copy cataloging. Since the 1970s, they have supported central cataloging, search, and ILL services for about 500 Swedish libraries. In 2018 they transitioned to an open data model, using BibFrame and linked open data. Their 10 million records are available for open discovery and reuse under a CC0 license[35]. (Note that Sweden negotiated for 7+ years with OCLC to confirm this right[36]). Likewise, Denmark's Bibliotek.DK service provides a central metadata repository[37]. Finland also has developed a national metadata and collaboration environment, Melinda. Like Libris, it is available to all participating libraries (initially academics, but expanding to public libraries) regardless of their library management platform. Currently, the central database runs on Aleph[38].

We recognize that the examples above are all far smaller than the U.S. But taken as a whole, they provide a model for how libraries might consider other approaches. Whether through the creation of a central bibliographic catalog or through federated access to multiple systems, alternatives are already proving successful in other countries.

Collection Analysis / Shared Print Programs

Shared Print is an approach to collective collection building for libraries. Libraries agree to build a corpus of print material that the members agree to retain (either on-site or in a shared off-site facility) to provide access and preservation of print resources to members. Shared Print is commonly promoted as a solution to space limitations and growing print collections. Shared Print agreements help define canonical collections. Many Shared Print agreements are based regionally, so there is often a local interest component.

The Center for Research Libraries' Print Archive Network (PAN) "promotes opportunities for knowledgeable individuals at libraries and consortia to share information, expertise and best practices on the strategic management of print holdings." Many shared print initiatives nationally and internationally are listed in the *Directory of Shared Print Programs*[39]. Links to North American regional opportunities are provided below.

How to Engage:

- Join the PAN Listserv
- Attend PAN forums to keep up to date. These are held twice a year on the Friday before ALA.
- Follow collaborations between shared print programs like the Rosemont Shared Print Alliance and the Partnership for Shared Book Collections.
- Join a shared print program in your region
  - *Directory of Shared Print Programs*
  - Western US
  - Southern US
  - Eastern US
  - Ontario, Canada

Gold Rush: https://coalliance.org/software/gold-rush While Gold Rush is a commercial solution, its pricing is determined on a cost-recovery basis, libraries created it, and it continues to work closely with library stakeholders.

[33] https://www.jisc.ac.uk/rd/projects/national-bibliographic-knowledgebase
[34] https://libraryservices.jiscinvolve.org/wp/2022/08/ending-of-jisc-and-oclc-national-metadata-agreement-practical-impact/
[35] https://libris.kb.se/katalogisering/about
[36] https://www.infodocket.com/2014/02/14/library-data-national-library-of-sweden-signs-agreement-with-oclc-re-cc0-license/
[37] https://bibliotek.dk/eng
[38] https://www.kiwi.fi/display/melinda/Palvelun+kuvaus
[39] https://cdlib.org/services/collections/sharedprint/programs-and-initiatives/

Their Decision Support tool "allows library staff to compare title lists from over 1,500 aggregators, publishers, and indexing/abstracting services loaded into Gold Rush. It allows comparison of the content within packages even if the library does not subscribe to them. The tool is especially helpful to collection development, library administration, and reference staff who are trying to make tough decisions on what products to purchase and cancel."[40]

Discovery / OPAC Interfaces

Patron-facing library search tools typically consist of a back-end bibliographic catalog, often combined with an article mega-index (e.g., Summon, Primo Central, or EDS), tied together with an easy-to-use search interface. Some libraries have chosen to deploy locally-managed discovery or OPAC interfaces rather than use the default interface provided by their library management system or discovery system. The decision is typically due to the desire to have more control over the interface and user experience rather than cost considerations. Choosing not to use the default interface will likely not lower your ILS or discovery vendor's bill. The library will have additional costs to create and maintain the locally-managed interface. However, many robust open source solutions are available in this space, so the "lift" to implement is much lower than in the past. For many libraries, the desire to control their users' experience more closely and to maintain a consistent end-user interface despite back-end changes make this choice worth it.

How to Engage:

- Talk with a library that has implemented its own discovery interface to understand more about the pros and cons of this approach
- Conduct usability testing with various publicly available discovery platforms to rank search result relevance, holdings display, mobile functionality on small screen devices, results for title series, search suggestions, and accessibility
- Pick one of the options below and stand it up on a test server
- Work with a vendor to implement discovery in a cloud environment

Blacklight: https://projectblacklight.org/ "Blacklight is an open source Ruby on Rails 'engine' that provides a basic discovery interface for searching an Apache Solr index, including fielded searching, applying and removing facet constraints, sorting and paginating through search results, and more. As an engine, Blacklight components are customizable via Rails (templating) mechanisms to meet the search and discovery needs of heterogeneous data, allowing different information displays for different types of objects."

VuFind: https://vufind.org/vufind/ "VuFind® is a library resource portal designed and developed for libraries by libraries. The goal of VuFind® is to enable users to search and browse through all library resources by replacing the traditional OPAC to include:

- Catalog Records
- Locally Cached Journals
- Digital Library Items
- Institutional Repository
- Institutional Bibliography
- Other Library Collections and Resources

VuFind is modular. A library can implement any or all components, which can also be modified or extended. Two other discovery interfaces have their roots in VuFind, although they have developed in different directions to meet the needs of specific audiences and can now be considered independent solutions: Pika and Aspen.

Pika: https://marmot.org/pika-discovery/about-pika "Pika was created to address the needs of patrons by solving several common usability issues: all formats of a work are grouped together, patrons can serendipitously discover titles to read next, and all functionality works on any size device with responsive design. Pika development started in 2009 based on an early version of VuFind created by Villanova University. At that time, VuFind was primarily intended

[40] https://coalliance.org/software/gold-rush

for use by academic libraries. Marmot added significant functionality intended to make VuFind more relevant to public libraries and more configurable for usage by a multi-type consortium."

Aspen Discovery: https://bywatersolutions.com/products/aspen-discovery Aspen is an open-source project that is more recent in its project life and has been gaining support from library consortia.[41] The effort behind Aspen is taking the VuFind open-source platform and building an OPAC designed for library consortia or libraries with large bibliographic databases. The Aspen Discovery platform improves many areas of VuFind in that it displays a FRBR-based result of grouped works based on RDA cataloging standards. ByWater Solutions is heavily involved in the software development of Aspen Discovery, but the library community supporting Aspen has grown quickly in 2022. The Aspen Discovery project is planning its first community conference in 2023, and organizations interested should reach out to the agencies live on Aspen and be involved in its development.

GOKb: https://gokb.org/ The Global Open Knowledgebase (GOKb) is a freely accessible online platform for the collaborative management of e-resource information. To offer high-quality data for downstream systems (ERM, discovery, etc.), the GOKb is largely based on the cooperative work of libraries and thus capitalizes on their distributed expertise. Licensing e-resources (e-books, e-journals, etc.) is rarely done for individual titles but rather for larger "packages" that comprise any number of titles. GOKb is specifically designed for that type of data. It covers all necessary steps, ranging from importing KBART files describing entire packages to enriching title data with unique identifiers. All GOKb data is available for re-use free of charge under a CC0 1.0 Public Domain Dedication.

How to Engage:

- Become a Volunteer Data Manager. Volunteer your time and expertise by participating in data loading and data enhancement projects.
- Free Partnership is available to any organization willing to contribute effort toward creating and maintaining data in GOKb.
- For more information about volunteer and partnership opportunities, contact Johann Rolschewski at johann.rolschewski_at_sbb.spk-berlin.de or visit https://gokb.org/get-involved.html

Share-VDE (Share-virtual discovery environment): A library-driven initiative for a shared discovery environment using linked data based on metadata of contributing institutions' bibliographic catalogs and authority files: https://wiki.share-vde.org/wiki/Main_Page

- Currently includes metadata from libraries in the US, Canada, and Europe
- The founding members of the initiative are the Library of Congress, the National Library of Norway, Stanford University, the University of Alberta, the University of Chicago, and the University of Pennsylvania.
- Share-VDE members can participate in the Advisory Council and Working Groups https://wiki.share-vde.org/wiki/ShareVDE:Members/Share-VDE_working_groups

Institutional Repositories

Islandora: https://www.islandora.ca/ Islandora is an extensible, modular, open source digital repository ecosystem focused on collaborative authorship, management, display, and preservation of digital content at scale. Islandora adheres to widely adopted best practices and open standards.

DSpace: https://dspace.lyrasis.org/ DSpace is a web application used by institutions, researchers, and scholars to publish documents and data. While DSpace shares some feature overlap with content management systems and document management systems, the DSpace repository software serves a specific need as a digital archives system, focused on the long-term storage, access and preservation of digital content.

[41] https://bywatersolutions.com/news/bywater-solutions-announces-support-aspen-swan-library-services

Archipelago: https://archipelago.nyc/ “Archipelago is an open source digital collections software designed to empower communities of every size and shape.” It was developed by the Metropolitan New York Library Council, which offers a variety of hosted options and support services, along with other partners and supporters. For more information, contact info@metro.org.

Samvera/Hyrax/Hyku: https://samvera.org/, https://hyku.samvera.org/ Samvera repository applications are developed based on the premise that no single system can provide the full range of repository-based solutions for a given institution’s needs, and that no single institution can resource the development of a full range of solutions on its own. The consortial application development project focusing on reducing library costs through collaboration is https://www.hykuforconsortia.org/. See the https://www.openrepositories.org/ conference for ideas, community, and support.

Electronic Resource Management (ERM) Tools

CoralERM: http://coral-erm.org/ “CORAL is an electronic resource management system initially started by the University of Notre Dame’s Hesburgh Libraries. The first module, Licensing, was released as open source software in the summer of 2010, and we have continued releasing new modules since then. It is designed to be both simple and highly customizable – each module can be installed independently or used together depending on your library’s needs. If you decide to install the entire suite, easy access to linked records helps make sense of the electronic resource through the entire life cycle of acquisition, licensing, administration, support, and usage. CORAL is released as open source software under GPL v. 3 and is available on GitHub.”

CORAL has a robust support page that includes links to the committee meeting information and past minutes.
FOLIO ERM: https://docs.folio.org/docs/erm/ The FOLIO library services platform has an ERM module that can be deployed as a standalone service. Many libraries have implemented the ERM module alone, either to gain an ERM for long-term use or to begin experimenting with FOLIO while waiting for the rest of the functionality to mature. FOLIO ERM functionality includes: Creating and managing agreements, Creating and managing licenses, Managing an external or internal knowledge base, and Managing your library’s electronic resources.

CONCLUSION

This report has articulated a broad vision for how libraries and consortia should radically rethink operations long-term to build the future we need. We have provided suggestions for immediate steps that we can take – with existing vendors, with the open source community, and with each other – to move us toward that future.

This report is not intended to be a comprehensive list of all open or collaborative initiatives underway. Instead, we hope it will serve as a snapshot in time, illuminating some interesting opportunities and raising awareness of alternative solutions.

We challenge all libraries, especially consortia, to commit immediately to one or more of the strategies recommended in this report.

Initial commitments could be:

- A thoughtful reframing of existing contracts to ensure they meet collaborative needs around pricing, standards and interoperability, and data sharing;
- Identifying a community-led or open source initiative that holds promise and committing time and/or money;
- Working with your stakeholders to rethink your overall budgets in a long-term, strategic manner that reinvests in building in-house capacity and supports large-scale alternative solutions;
- Or forming partnerships between groups of consortia or libraries to tackle large initiatives and seek funding.

No single strategy will be right for all libraries or consortia. But if we work together, we can move the needle and advance towards a future that supports all our needs.

The ICOLC Strategies for Open Collaboration in Library Consortia Task Force is made up of volunteer ICOLC members, including the people below and several others who wish to remain anonymous:

Elijah Scott (FLVC)
Lucy Harrison (GALILEO)
Scott Garrison (MCLS)
Emily Flynn (OhioLINK)
Jill Morris (PALCI)
Kirsten Leonard (PALNI)
Rick Moul (PASCAL)
Mark Sullivan (SUNY)
Aaron Skog (SWAN)

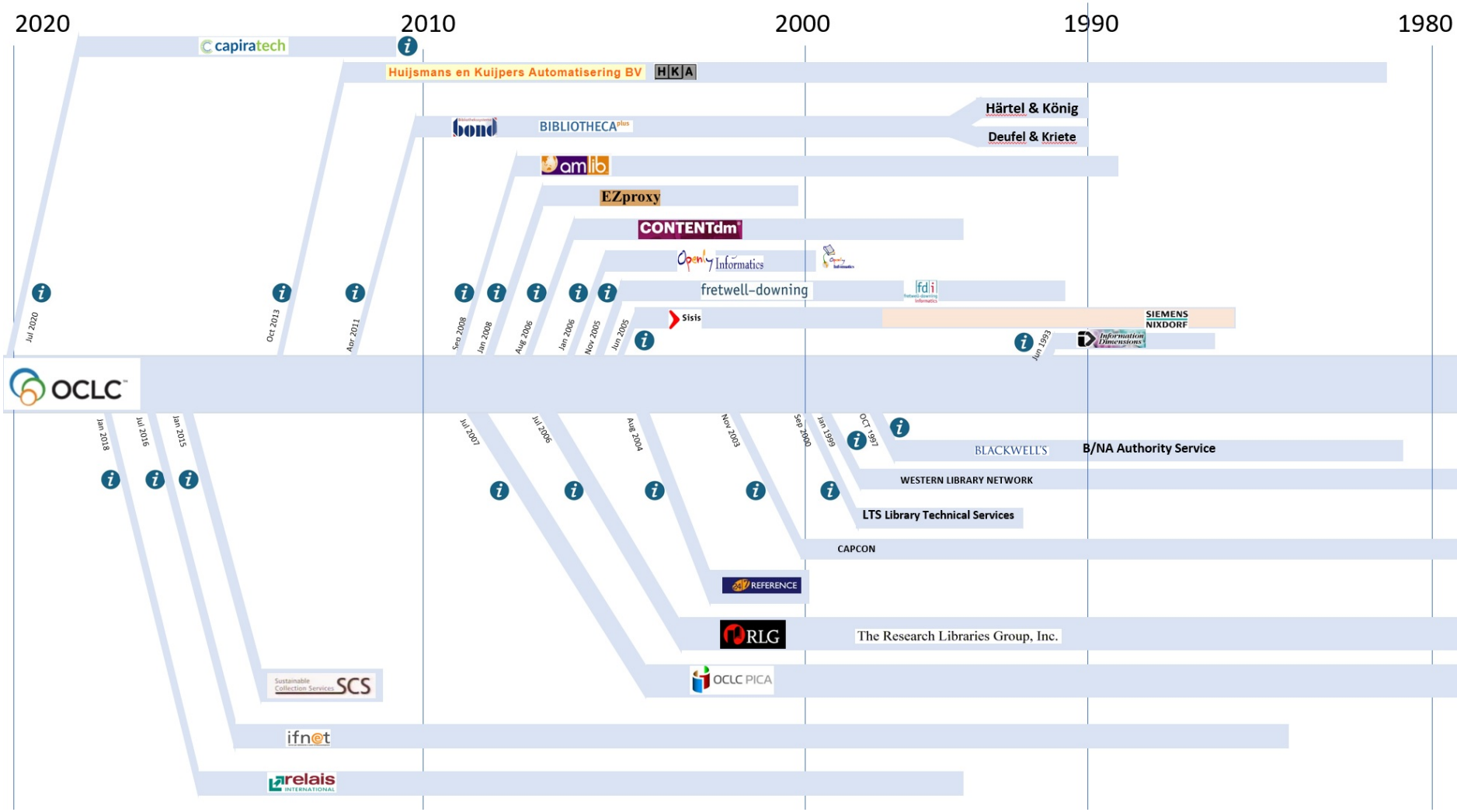
This report also benefited from the thoughtful comments of several external reviewers, including Todd Carpenter, Kyle K. Courtney, Richard Dunks, Heather Greer Klein, David W. Lewis, George Machovec, Roger Schonfeld, and several others who wish to remain anonymous. Please note that their review of this report does not necessarily equate to their endorsement of its content.

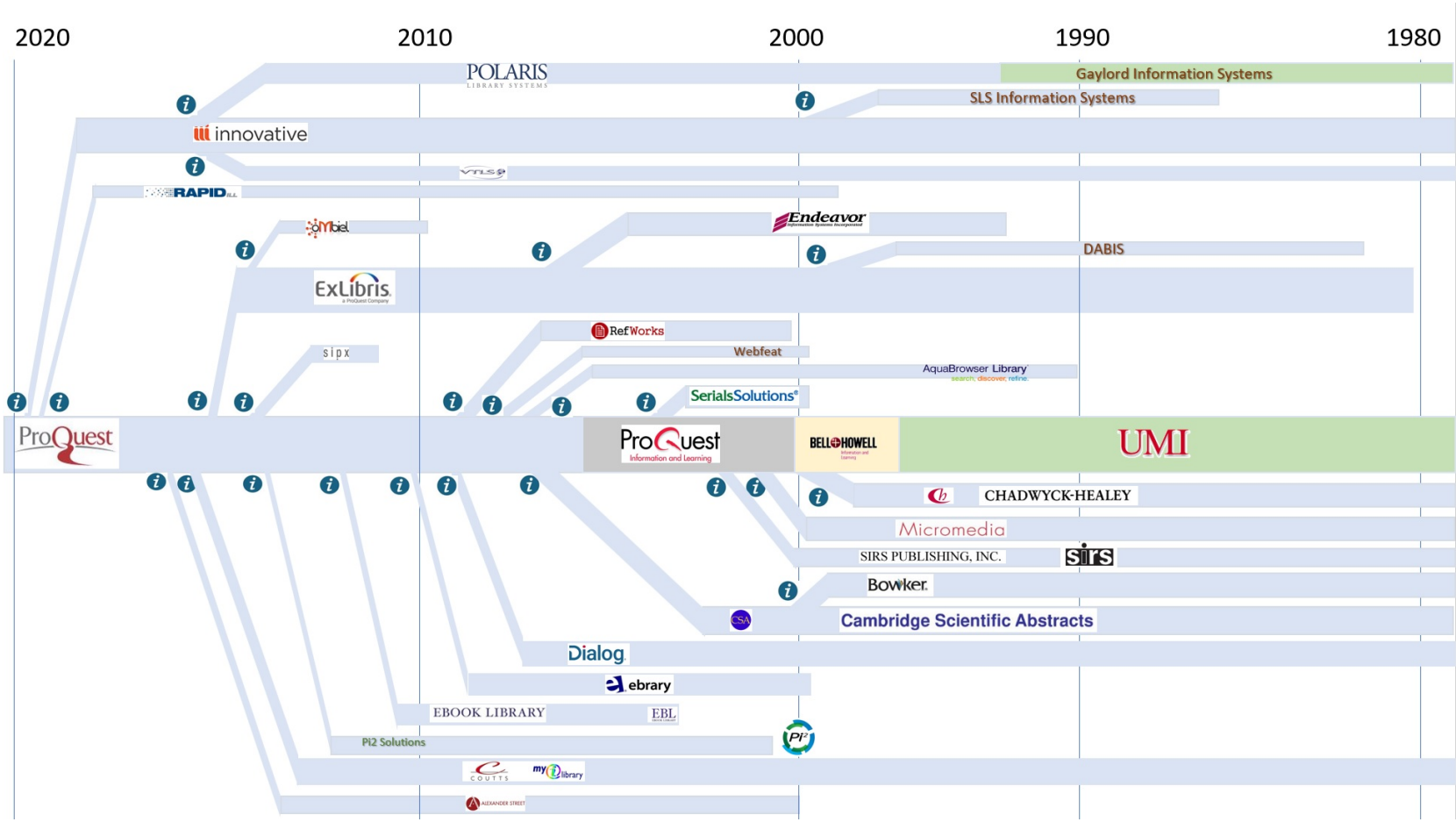
This report was endorsed by the ICOLC Coordinating Committee at its meeting on 9/15/2022. ICOLC CC Members:

Angus Cook, CAUL
Anne Craig, CARLI
Teri Gallaway, Co-Chair, SCELC
Amanda Holmes, CRKN
Jiří Jirát, CzechELib
Nancy Kirkpatrick, OhioNet
Rick Moul, PASCAL
Patrick Peiffer, Consortium Luxembourg
Pim Slot, Co-Chair, SURFmarket | UKB
Celeste Feather, ex officio for administration, LYRASIS

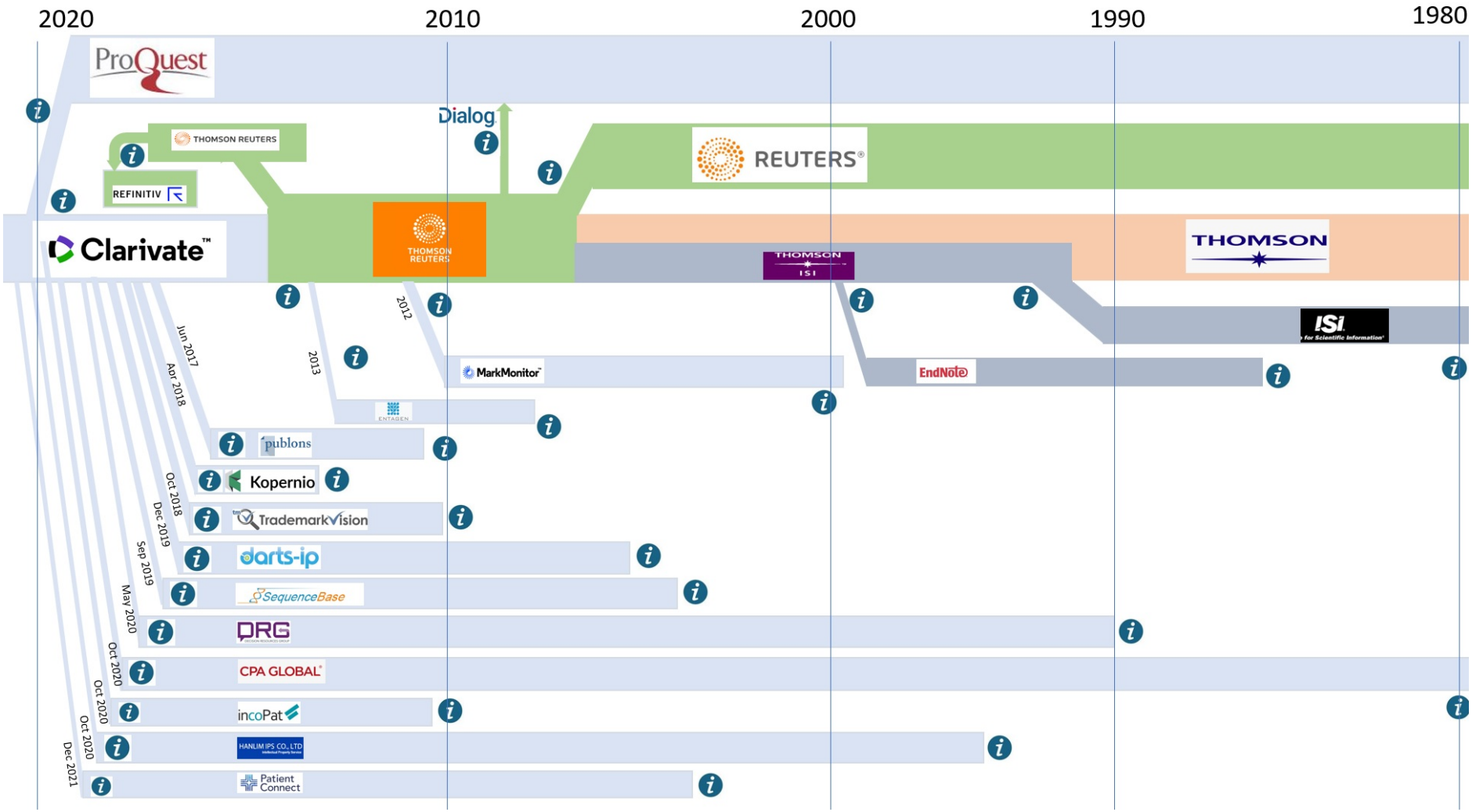
Appendix A: Examples of Mergers and Acquisitions (OCLC, p. 26; ProQuest p. 27; Clarivate p. 28)

The following graphics were taken from Marshall Breeding's "Mergers" site: https://librarytechnology.org/mergers/





Note: ProQuest was acquired by Clarivate in 2021; see next page.


2020
2010
2000
1990
1980
ProQuest
Dialog
THOMSON REUTERS
REFINITIV
REUTERS
Clarivate
THOMSON REUTERS
THOMSON
ISI
THOMSON
ISI
for Scientific Information
2012
2013
Jun 2017
Apr 2018
Oct 2018
Dec 2019
Sep 2019
May 2020
Oct 2020
Oct 2020
Oct 2020
Dec 2021
MarkMonitor
EndNote
ENTAGEN
publons
Kopernio
TrademarkVision
darts-ip
SequenceBase
DRG
CPA GLOBAL
incoPat
HANLIM IPS CO., LTD
Patient Connect